

MEDICAL REPORTS

FOR THE

HALF YEAR ENDED 30TH SEPTEMBER, 1875;

FORWARDED BY THE SURGEONS TO THE CUSTOMS AT THE
TREATY PORTS IN CHINA;

BEING No. 10 OF THE SERIES,

AND

FORMING THE SIXTH PART OF THE

CUSTOMS GAZETTE

NO. XXVII.—JULY-SEPTEMBER, 1875.

PUBLISHED BY ORDER OF

The Inspector General of Customs.

SHANGHAI:

IMPERIAL MARITIME CUSTOMS STATISTICAL DEPARTMENT.

MDCCCLXXVI.

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1913

HALF YEAR ENDED 30 SEPTEMBER 1913

REPORT OF THE MEDICAL OFFICER FOR THE YEAR 1913

BY THE MEDICAL OFFICER

REPORT OF THE MEDICAL OFFICER

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REPORT OF THE MEDICAL OFFICER

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INSPECTOR GENERAL'S Circular No. 19 of 1870.

INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31st December, 1870.

SIR,

1.—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China; and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at.....upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2.—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the Medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a.—The general health of.....during the period reported on; the death rate amongst foreigners; and, as far as possible, a classification of the causes of death.

b.—Diseases prevalent at.....

c.—General type of disease; peculiarities and complications encountered; special treatment demanded.

d.—Relation of disease to { Season.
Alteration in local conditions—such as drainage, &c.
Alteration in climatic conditions.

e.—Peculiar diseases; especially leprosy.

f.—Epidemics { Absence or presence.
Causes.
Course and treatment.
Fatality.

Other points, of a general or special kind, will naturally suggest themselves to medical men; what I have above called attention to, will serve to fix the general scope of the undertaking. I have committed to Dr. ALEX. JAMIESON, of Shanghai, the charge of arranging the reports for publication, so that they may be made available in a convenient form.

3.—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated; and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr., and request him, in my name, to hand to you in future, for transmission to myself, half-yearly reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons.

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I am, &c.,

(signed)

ROBERT HART,

I. G.

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,**Tientsin, Foochow,**Chefoo, Tamsui,**Hankow, Takow,**Kiukiang, Amoy,**Chinkiang, Swatow, and**Shanghai, Canton.*

SHANGHAI, 1st January, 1876.

SIR,

IN accordance with the directions of your despatch No. 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs the following documents :—

- A.—Remarks on Lymph Scrotum, Elephantiasis, and Chyluria, pp. 1-14;
- B.—Notes of cases of Unusual Milk Secretion, pp. 15-17;
- C.—Note on the Etiology of Cancer, pp. 18-21;
- D.—Note on the Use of the Root Bark of Ailanthus in Dysentery, pp. 22-24;
- E.—Note on a case of Recovery from Rinderpest, p. 25;
- F.—Report on the Health of Amoy, for the half year ended 30th September 1875, p. 26;
- G.—Report on the Health of Foochow (Pagoda Anchorage), for the half year ended 30th September 1875, pp. 27-45;
- H.—Report on the Health of Hankow, for the year ended 30th September 1875, pp. 46-52;
- I.—Report on the Health of Shanghai, for the half year ended 30th September 1875, pp. 53-66.

I have the honour to be,

SIR,

Your obedient Servant,

R. ALEX. JAMIESON.

THE INSPECTOR GENERAL OF CUSTOMS,
Peking.

The Contributors to this Volume are—

PATRICK MANSON, M.D., CH. M.,	}	Amoy.
AUG. MÜLLER, M.D.,		
DAVID MANSON, M.D., CH. M.,		
R. ALEX. JAMIESON, M.A., M.D.,	}	Shanghai.
J. H. BLAIR, Esq.,		
Mons. E. DUGAT,		Peking.
J. R. SOMERVILLE, M.D., F.R.C.S.E.,		Pagoda Anchorage, Foochow.
A. G. REID, M.D., F.R.C.S.E.		Hankow.

A.—REMARKS ON LYMPH SCROTUM, ELEPHANTIASIS, AND CHYLURIA. By

Patrick MANSON, M.D.

IN previous numbers of these Reports (No. 2 p. 13, No. 5 p. 9 and No. 8 p. 67) I published short notes of cases of a disease which, for want of a better name, I designated "Lymph Scrotum." At the time those cases were seen I was not aware that anything of the kind had been noticed by medical writers, and indeed none of the usual text books on surgery or pathology, or monographs on skin diseases or diseases of the scrotum, contain any allusion to this particular pathological condition. Recently, however, I have had an opportunity of consulting the different Indian medical periodicals and other works relating to elephantiasis, and have found that this peculiar disease has been observed by others, and that since the discovery by Dr. LEWIS of the *filaria sanguinis hominis*, it is beginning to occupy the attention of the profession, especially in India. As it seems likely to form the link required to associate such apparently dissimilar diseases as chyluria and elephantiasis, a short résumé of what I have been able to glean and my conclusions may prove interesting and instructive.

Though many cases of lymphorrhagia from different parts of the body, especially the legs and groins, have been published, and although in descriptions by various authors of cases of elephantiasis lymphous discharges from the parts affected have been alluded to, yet the first description of lymph scrotum as a distinct pathological condition dates so recently as 1854. It was reported by Mr. Ardaseer JAMSETJEE in the *Transactions of the Medical and Physical Society of Bombay* (Vol. ii. New Series, p. 341,) as follows:—

"Patient a stout Parsee merchant, æt. 50; duration of the disease 17½ years, preceded by an injury. There are vesicles of a minute size at the front and upper part of the scrotum, where the integument is rough and thick, from this exudes a white milky fluid sometimes to a large amount; this coagulates and afterwards separates into two parts; there are no corpuscles in it. The discharge is irregular in its appearance and subsequently the vesicles subside. The general health is good. The author supposes the occurrence of this discharge prevents increase of the hypertrophy of the scrotum which otherwise might take place." This is the case as condensed by Dr. CARTER; he adds that the character of the "milky" discharge was not detected.

A second and a third case were published in the *Edinburgh Medical Journal* for January 1860, under the title of "Milky Exudation from the Scrotum," as an extract from the "Report of the Missionary Hospital at Kumleefou in the western suburbs of Canton, for the year 1858-9, by WONG-FUN, M.D." The description of the first of these is accurate and careful and corresponds with my cases in every particular.

The next and most important notices are by Dr. Vandyke CARTER in the *Transactions of the Medical and Physical Society of Bombay*, 1861 and 1862, and in the *Medico-Chirurgical Transactions*, (Vol. xlv. 1862). In these publications will be found several well marked cases very fully and carefully described, along with an elaborate discussion on the pathology of the

disease and its connection with the ordinary form of elephantiasis. One of the cases is of unusual interest, and resembles some of mine in affording an illustration of the significant combination of a varicose condition of the scrotal lymphatics and chyluria. The history of this case I will give. "Four months since the scrotum began to enlarge, native applications were made, and it was only after a time that the peculiar corrugation of the skin appeared. The "milky discharge regularly occurs spontaneously, and it intermits; at present it has been going "on for two days, and he reckons to have lost about one pound of fluid daily. It does not issue "from any one spot but from several; it may be according to the number and position of the "tubercles that have burst. When it ceases, and sometimes also when the discharge is going on, "the urine becomes chylous and frequently coagulates. Such is his own account. Health in- "different. No appetite. He was afterwards admitted into hospital, and I found that the tume- "faction of the inguinal glands seemed to alternate with the appearance of chyle in the urine. "This circumstance was sufficiently established. The parts became tumefied a short time (2 or "3 hours) after a full meal, and then again subsided. There did not appear to be any regularity "in the appearance or disappearance of chyle in the urine." These are some of the facts of the case which supplied Dr. CARTER with the key to the pathology of what hitherto had been a most obscure disease, and to him undoubtedly belongs the great merit of making the first step towards a rational explanation of a most important point.

In his work on *Clinical Surgery in India*, published in 1866, Dr. FAYRER describes a case of this disease on which he operated—he calls it "Nævoid Elephantiasis." After the tumour was removed it "weighed a little more than a pound, and shrank and curled itself up remarkably; "so much so as almost to obliterate the appearance of cellulo-erectile tissue which was very well "seen just after it was removed. On examination it was found to be a modified form of the "ordinary elephantiasis. The tissue subjacent to the epidermis was dilated into numerous "interlacing and intercommunicating sinuses and cells. These, owing to the contractility of the "dartoid tissue, had shrunk almost to obliteration, but they could be followed by a probe and "traced to their extremities, the probe in each case appearing near the surface and covered only "by a thin layer of tissue. As to the microscopic appearance of the remainder of the growth, "it was precisely that of the ordinary examples of elephantiasis, the chief distinction between the "two forms being the cellular arrangement I have attempted to describe." Dr. FAYRER again alludes to the disease in his *Clinical and Pathological Observations in India*, published in 1873, and lately in the *Practitioner* for August 1875. A paper by Surgeon K. McLEOD in the *Indian Medical Gazette* for August 1874, contains an interesting analysis of the literature of this subject, and describes a well marked case observed by himself. He calls the disease "Varix Lymphaticus" and remarks that it is not of infrequent occurrence in India.

These notices, along with brief allusions to it by Dr. DRUITT in the *Medical Times and Gazette*, by Dr. LEWIS in papers in the *Reports of the Sanitary Commissioner with the Government of India*, by RINDFLEISCH, and cases published by me in the *Customs Medical Reports*, include all that has been written on this matter, as far as, after a diligent search, I have been able to learn.

The interest of the subject, however, does not stop here, for taken in connection with Dr. LEWIS' discovery of the *filaria sanguinis hominis*, it is likely to supply a link in the hitherto

obscure pathology of elephantiasis and chyluria, and to bring these apparently very different diseases under the same etiological heading.

In the following remarks I will endeavour, if possible, to establish: first, the generic identity of lymph scrotum and the ordinary form of elephantiasis; second, the generic identity of elephantiasis and tropical chyluria; third, I will bring forward evidence to support the inference that these three diseases acknowledge the same etiological cause; and, lastly, this cause I hope to show is the *filaria* of LEWIS.

I.—First, with regard to the connection existing between lymph scrotum and elephantiasis, I think there can be little room for doubt that they are not only similar diseases, but that they are the same disease in slightly different forms, or at different steps, and for the following reasons:—They both attack the same part, the scrotum; they are both accompanied by the same kind of fever and inflammation; they both involve primarily the lymphatics; their geographical distribution, as far as known, is identical—at least lymph scrotum has been found only in countries where elephantiasis is endemic; the course of both diseases is similar; and, lastly, they both sometimes occur in the same individual together, or one after the other. If these points can be established no room for doubt can exist. With the exception of one, viz., the lymphatic nature of elephantiasis, they are all conceded or can be easily proved.

Lymph scrotum depends on a varicose condition of the lymphatics; this is in fact the pathology of the disease. The nature of the discharge, the appearance of the vessels containing it before evacuation, the peculiar feeling conveyed to the finger in examining the universally enlarged inguinal glands, sufficiently establish this. Opinion, however, is not unanimous about the lymphatic nature of the common form of elephantiasis. Some have ascribed it to inflammation of the skin and cellular tissue, to erysipelas, phlebitis and other causes; and, if these views are correct, we could only look on the diseases under consideration as, though similar to some extent in appearance and history, entirely different in nature.

Dr. Allan WEBB in a paper on "Elephantiasis Orientalis" in the *Indian Annals of Medical Science* (No. iv., April 1855,) says:—"Indeed the disease neither originates in lymphitis nor in phlebitis, but is formed exterior to the vessels by nuclei which develop themselves into mixed fibro-cellular and elastic tissue, enclosing albuminous fluid. In fact we shall see that the disease is essentially *fibrous outgrowth* from albuminous blastema." This must not be read as meaning that the lymphatics have nothing to do with the existence of the "albuminous blastema" from which the "fibrous outgrowth" is formed. He even gives a case which, in itself alone, is almost sufficient to prove that the lymphatics are first affected, and that in them or from them the "albuminous blastema" is obtained. The case is interesting. The patient detailed the usual history of fever and inflammation, and said "that after each attack of fever during a period of four years the scrotum would transude a quantity of *white ropy looking matter*, which very much reduced its bulk . . . But about ten months ago this suddenly ceased and the tumour rapidly doubled in size . . . The manner of transudation," he says, "is, that during the paroxysm of the fever minute vesicles about the size of a pin's head appear. They are scattered all over the surface of the tumefied scrotum. They become more prominent and distended with serum (?) after the fever subsides, and break rapidly and discharge their contents." The description of the discharge is not very full, but sufficient is said to recognise

it as the discharge characteristic of lymph scrotum, in fact lymph, which, after ceasing to find an escape by the skin, accumulated in the scrotum and undoubtedly became the "albuminous blastema" from which the "fibrous outgrowth" was formed; for, not till after this fluid ceased to flow did the tumour grow and acquire the appearances of elephantiasis.

BRETT (*A Practical Essay on some of the Principal Surgical Diseases of India*), WISE (*Transactions of the Medical and Physical Society of Calcutta*, Vol. vii.), BOUILLAND, RAYER and some others maintain that the disease is dependent on a venous cause. Nevertheless, the balance of opinion, as well as the evidence of facts, is very decidedly in favour of its lymphatic nature. ALARD, VIRCHOW, MOHAMMED ALY Bey, FAYRER, CARTER, and most modern writers who have seen much of the disease, are of this opinion. PAGET (*Lectures on Surgical Pathology*, 3rd Ed.) recognises the presence of lymphatic disease; he says, "sometimes elephantiasis may co-exist with an obstructed and dilated condition of the lymphatics situated in the connective tissue of the parts. The dilated lymph vessels in some of these cases have contained a quantity of "milky chyle-like fluid." The testimony of Dr. James HENDY, who wrote in 1784 *A Treatise on the Glandular Disease of Barbadoes, proving it to be seated in the lymphatic system* is almost in itself conclusive. He mentions that in the examination of a leg amputated for elephantiasis, the lymphatic "on the top of the foot" admitted a large quill with ease; other lymphatics were similarly affected, their walls being so thinned and weakened that they could not bear quicksilver injection. Such a state of lymphatics I have seen in the living body during the progress of an operation for elephantiasis, and so large was the stream of lymph from the proximal end of one of these vessels which I divided, that a ligature had to be used.

Such evidence of the lymphatic nature of elephantiasis is in itself of great weight, and if we find that disease in combination with well marked lymph scrotum, there can be little doubt as to the nature of elephantiasis or of the identity of the two diseases. Good illustrations of such a combination—not to pass from my own experience—are to be found in several of the cases I have recorded. No. 10 of the series was a well marked case of lymph scrotum. On account of its size the scrotum was removed, and on section the diseased mass had the "usual appearance of elephantiasis—a strong outer rind of about $\frac{1}{2}$ an inch in thickness and the interior filled with a gelatinous mass. The vesicles on the surface communicated with the central part; a wire could be passed from the one to the other." Again, in case 15, "the skin of the upper part of the scrotum was covered with numerous vesicles which on puncture discharged 10 ounces of straw-coloured fluid; the skin covering the penis was very much thickened and elongated so that the glans was invisible—elephantiasis." The combination of the diseases, or rather the gradual passing of the one into the other, is still better illustrated in case 21. In this case the scrotum, for upwards of ten years, discharged regularly about once a month, from 10 to 50 ounces of white fluid; this stopped and the parts then gradually enlarged, assuming the usual appearance of elephantiasis, for which he was operated on seven years after. All discharge had ceased, and a characteristic tumour was removed.

Enough, I think, has been advanced to prove the close relationship, if not the identity, of these two diseases. The cause of the slight difference is, I believe, not difficult to find. Assuming for the time being, what I afterwards hope to prove, that in both there is obstruction to the circulation of lymph, I would suggest that in the case of lymph scrotum the obstruction

is not complete, that the upward progress of the lymph, though retarded, is not thoroughly arrested, and that it is kept fluid by being allowed thus to circulate, just as the blood is in veins made varicose by obstruction. Or perhaps the obstruction above may be complete, but yet a movement of the lymph is allowed by the rupture of a vessel on the surface of the scrotum, and it is thus prevented from stagnation and coagulation. On the other hand, in ordinary elephantiasis, I conjecture that the obstruction is complete or nearly so, and that there is no rupture of vessels on the surface. In consequence of this there is complete stagnation of lymph; it coagulates, and eventually becomes organised into degraded forms of the tissues in which it has accumulated. A somewhat analagous thing occurs in the contents of an aneurism when the vessel, as in one operation, is tied on the distal side of the swelling.

II.—The second point I propose to consider, viz., the generic identity of tropical chyluria and elephantiasis, is more difficult to establish; but still, I think, sufficient evidence can be brought together to warrant such a conclusion.

That the urine in chyluria derives its peculiar characteristics from an admixture of chyle or lymph, is now pretty generally admitted; the chemical and physical qualities of the secretion, and the exact counterfeit of it produced by an artificial admixture of chyle and urine, prove this. But the way in which the chyle gets access to the urinary passages is not by any means so clear. Lately, however, and especially since the publication of Dr. CARTER's papers above referred to, the opinion is gaining ground that this is effected by rupture of lymphatics in the kidney, ureter, or bladder. This ingenious theory, as it is compatible with all the phenomena of the disease and can be supported by facts, may be accepted. Dr. LIONEL BEALE and Dr. ROBERTS strongly favour such a view. They look upon the state of the urine as dependent on a condition of the lymphatics of some part of the urinary passages similar to what obtained in the many cases of lymphorrhagia now on record. One case, given by Dr. ROBERTS, is almost conclusive. It is that of a man, the skin of the lower part of whose abdomen was studded with numerous vesicles filled with a milky white fluid, in fact, the appearance of the part and the nature of the fluid seemed to be identical with that of lymph scrotum. There was, with the exception of short intervals, a discharge of lymphous fluid constantly distilling from the part. The condition of the urine was carefully noted during the progress of the case, and on three occasions it presented all the characters of chylous urine; while the chyluria lasted the eruption was dry. The man died, and although nothing peculiar was remarked in the lymphatic system of the interior of the abdomen at the post-mortem examination, yet who cannot agree with Dr. ROBERTS in believing that the case throws light on the pathology of chylous urine; and that at one time, when the urine was chylous, there existed a state of lymphatics of some part of the urinary apparatus similar to that on the skin of the abdomen, and that from this the chyle was derived? I have already described a similar case occurring in Dr. CARTER's practice. From the facts of this and two other cases—one of lymphorrhagia from the groin uncomplicated with chyluria, and one of chyluria uncomplicated with external lymphorrhagia—Dr. CARTER argues, and I think conclusively, that the lymph in the urine of chyluria is derived directly from ruptured lymphatics. Two cases of my own—Nos. 10 and 16—completely bear out this view. In the first, a large discharge of fluid, at first clear, but becoming as it flowed milky, and finally bloody, was obtained by pricking some vesicles at the back part of the scrotum. The patient's

urine had been chylous for some weeks, but after the escape of fluid from the scrotum it became natural, though whether it remained so after his discharge from hospital I cannot say. The other case, No. 16, had suffered from well marked lymph scrotum for three years, and his scrotum on admission to hospital yielded a very large supply of the characteristic fluid, 54 ounces at one time and 12 ounces at another. "A week afterwards the patient called attention to his urine which, "he said, he had been unable to pass for 8 or 10 hours. The urine was in large quantity, of a "reddish white colour, and coagulated rapidly. He complained of pain in the passage. After a "few days the urine again became natural. The diseased part of the scrotum was removed by "the knife and the parts healed up rapidly; but on the day following the operation the urine "became white like milk and in quantity about 20 ounces. After three weeks he went home. "Two months afterwards he returned to hospital. He stated that his urine still continued white, "but sometimes it was almost natural. A small patch, about one inch square, of the skin of the "scrotum was seen to be covered with vesicles. It was excised. Since then he has been passing "large quantities of chylous urine,—on an average 70 to 80 ounces in 24 hours."

For further and more detailed evidence on this point I would refer the reader to the writings of ROBERTS, BEALE and CARTER; but sufficient, I think, has been advanced to show that the urine in tropical chyluria derives its lymph from ruptured lymphatics. That the lymphatics in such cases are in a similar state to those in lymph scrotum may be inferred from the fact that the two diseases have been frequently found together in the same patient, as in the cases quoted. Seeing, then, that lymph scrotum and elephantiasis are proved to be closely allied, the inference that the latter and tropical chyluria are similarly connected may be drawn. To confirm this, case No. 10 shows the three diseases—lymph scrotum, elephantiasis and chyluria—all co-existing in a single individual.

III.—That these diseases acknowledge the same etiological cause is to be presumed from many facts their histories have in common. They are endemic in the same countries. Sporadic instances of chyluria and elephantoid disease, it is true, are found elsewhere than in the countries where they may be said to be endemic; but this can be held to prove no more than that causes, other than that which produces these diseases, may bring about similar pathological states. They are all distinguished by intermissions and remissions of their more acute symptoms. I will endeavour further on to show that, pathologically, they are almost identical. All have been found associated with a peculiar condition of the blood; and, as I have just said, all have been found at the same time in the same individual.

IV.—This brings us to the last point—the etiological cause of these diseases.

It can be gathered from the above remarks and the cases I have given, that in these diseases there exists an abnormal condition of the lymphatics, that they are dilated. What then is the cause of this condition? Dr. ROBERTS suggests that in chyluria the lymphatic network of some part of the urinary apparatus "becomes immensely hypertrophied; that its "channels become varicose (as it were); that the contained cells assume by degrees the property "and functions of the cells lining the lacteal ducts and lacteal glands," and that from these the secretion is derived. This glandular hypothesis of Dr. ROBERTS, however, will not explain all the phenomena of elephantiasis, nor of lymph scrotum. If such is the explanation, how is it that in pricking one of the vesicles in the latter disease the fluid that escapes in some cases first

runs clear, then milky, and perhaps finally bloody? If a glandular structure such as he describes is the source of the fluid, how could different specimens taken from the same body at the same time have different qualities; or how is it, that for days or months chyle may be altogether absent from the urine, and then suddenly appear and as suddenly vanish? A glandular structure could not be thus suddenly called into existence and operation, nor thus suddenly cease secreting. The cause is more likely a mechanical one and operates by occluding the lymphatic passages. This is CARTER'S idea, and BEALE'S too. It is difficult, in the absence of post-mortem evidence, to say where it is applied, but one condition of its application we know—it is intermittent; else how account for the intermittence of the acuter symptoms. Further light as to its nature has been supplied, I think, by the discoveries of Dr. LEWIS.

As the details of these interesting and important discoveries have not appeared at any length in the English medical journals, nor obtained the publicity their importance should command, and as they are only to be found fully reported in the *Indian Medical Gazette*, the *Indian Annals*, or in Blue Books, works not generally accessible to practitioners in China, I will take the liberty of giving a condensed account of the principal results of Dr. LEWIS'S labours in as far as they bear on the subject under consideration.

In March 1870, Dr. LEWIS first discovered in the urine of an East Indian, a patient in the General Hospital, Calcutta, suffering from chyluria, the parasite now known as the *filaria sanguinis hominis*. Since then he has given a great deal of attention to the subject, examining the urine in many cases of chyluria, and in such cases he has, on every occasion, found the *filaria* present. Towards the end of July 1872, while examining the *blood* of an East Indian suffering from diarrhoea, he observed nine minute nematoid worms in a state of great activity on a single slide of the microscope. These, on comparison, were found to be exactly similar to the *filaria* he had already observed in chylous urine. A few days afterwards an opportunity presented to examine the blood and urine of a chyluria patient, and in both fluids *filaria* were found to be present. This patient, a woman, remained under observation for upwards of two months, and though the urine slightly improved in appearance, and the *filariæ* diminished in numbers, yet both in it and in the blood they could generally be detected. A third case presented itself, and in this also chyluria was associated with *filariæ* in blood and urine. In this case the blood was loaded with parasites, as many as twelve having been observed on a single slide. Dr. LEWIS sets down 140,000 as a very reasonable estimate of the number in this patient's body. Some time after this, (two years after the appearance of the chyluria,) this man's scrotum became the subject of elephantoid enlargement, and when last examined *filariæ* could still be detected in his system. A fourth case in which hæmatozoa and chyluria were associated, had a fatal termination; the immediate cause of death being diarrhoea. A post-mortem examination threw no light on the source of the *filariæ*. A second post-mortem examination of a person whose blood contained the parasite was obtained, but, as in the other, the results were negative.

Towards the end of 1873, Dr. LEWIS had the opportunity of examining a case in which chyluria was combined with an elephantoid state of the scrotum. The urine, in addition to the chylous matter, contained a little coagulated blood, and *filariæ* were detected in this. "The patient was a Jew, and was suffering from acute pain produced by an inflamed condition of a moderately large scrotal tumour. This tumour had been coming on for many years, and

"increased and diminished in bulk at irregular intervals. It was studded with tubercular prominences, soft and yielding to the touch, and when a trocar was introduced several ounces of sanguineous fluid were withdrawn. . . . The chyluria had only been observed about a fortnight previously." In a second case of scrotal tumour, but in which no chyluria was present, the patient had been affected for nine months; "when the disease commenced, it was looked upon as a hydrocele and the tumour was repeatedly tapped and a milky, pus-like fluid withdrawn. The swelling, however, continued to increase, became very painful, and eventually attained the size of a man's head. The patient was admitted to the Presidency General Hospital for 'thickening and enlargement of the scrotum.' The tumour was twice tapped in hospital and the fluid removed sent to me for examination. It presented a somewhat purulent appearance but the odour was not offensive. Under the microscope it was seen to consist of broken-down granular matter, and every slide of it contained some half-a-dozen specimens of the *filaria*." A third example, of a similar kind, in which an elephantoid condition of scrotum and foot co-existed with chyluria, supplied specimens of the hæmatozoon. It was found in the blood obtained by pricking the fingers and toes. In a fourth case, in which the existence of chyluria was not ascertained, *filariæ* were found in the chyle-like fluid obtained from an elephantoid scrotum.

It may be useful to some to know how to obtain the hæmatozoon; the following is Dr. LEWIS's description of the plan he adopts:—"A piece of narrow tape is coiled tightly round the end of one of the fingers or toes, so as to produce a little temporary congestion of the part, but not to such an extent as to cause the slightest pain; and with a clean, finely-pointed needle the finger is gently pricked—half-a-dozen slides and covering glasses having been previously prepared. The drop of blood thus obtained will suffice for several slides, but I find it a good plan to squeeze out only a very small drop and transfer it altogether to one slide, by drawing the edge of the covering glass along the tip of the finger so as to *scrape* off the droplet. The glass is then carefully pressed on to the slide by a gliding motion, in order to produce as thin a layer as possible and to ensure that all the fluid removed is retained beneath the cover, because there is a tendency on the part of the fluid to carry the hæmatozoon towards the edge of the slide, just as is observed to take place in the examination of the urine for 'casts' of the kidney tubules." The slides must be very carefully examined, a quarter of an hour at least being devoted to each. If the first specimens have been found to contain no *filariæ*, fresh punctures must be made and the blood transferred as before to the covering glass and slide. A $\frac{2}{3}$ of an inch objective answers the purpose of a searcher. Should anything unusual be observed, the low power must be replaced by a $\frac{1}{4}$ of an inch or better an $\frac{1}{8}$ of an inch objective. Though sometimes easily found, occasionally slide after slide must be examined with the utmost care. Dr. LEWIS particularly insists on this; he says, "Any one who imagines that they can be detected with the same ease as a white blood corpuscle had better not make the attempt;" and that "no great amount of foresight is required to be able to predict that, owing to want of proper appliances, want of time, or other circumstances, such remarks as '*filariæ* were searched for but not found,' will not infrequently be recorded in connection with reports of chyluria cases."

Dr. LEWIS has given a very careful and complete description of the *filaria* as thus obtained. It is sufficient for purposes of recognition to say that, as seen in the blood, it is a long, snake-like

animal, very active in its movements, having a diameter about equal to that of a blood corpuscle and a length about 46 times its width. It looks as if it were provided with a sort of lash, but this is not the case, this appearance being produced by the extremities of the thin, transparent envelope within which the body of the parasite is rapidly retracted and extended. Traces of an alimentary canal have been seen, but very indistinctly.

Helminthologists know that these *filariæ* are the young of some mature nematode which, though it has hitherto escaped detection, must exist in the body bearing its progeny. In two post-mortem examinations of bodies in which *filariæ* were present, a prolonged and careful search failed to bring to light the parent parasite. Something, however, of its nature and habits may be inferred from further investigations by Dr. LEWIS on an analagous parasitic affection common among the pariah dogs of Calcutta.

This canine disease appears to be extremely prevalent, for it was detected in 10 out of 27 animals examined with the special object of finding it. In these 10 cases the blood was infested with *filariæ* resembling, though different from, the *filaria sanguinis hominis*; and associated with this condition of blood were found the following pathological conditions:—

1. "Fibrous-looking tumours, varying from the size of a pea to that of a filbert or walnut, "along the walls of the thoracic aorta and œsophagus, both tubes being affected, or "only one.
2. "Minute nodules in the substance of the walls of the thoracic aorta, from the size of "duck shot to that of small peas. They can be felt as tubercles, and usually project "somewhat on the outer surface of the vessel, a depression or slight extravasation "of blood, corresponding to the nodule, being visible on the inner side of the aorta, "and frequently a slight abrasion of the lining membrane.
3. "A pitted or sacculated appearance of various parts of the thoracic aorta, with thinning "of its walls at some parts; the lining membrane roughened at the spots affected; "the roughening, however, is not of an atheromatous character, but due to the "membrane being thrown into delicate rugæ, as if from contraction of the middle and "outer coats.
4. "Enlargement and softening of some glandular body adjoining the vessels at the base of the heart."

When the above-mentioned tumours were cut into, they were "found to contain one to six or more "mature nematoid worms, of a pinkish sanguinolent tint, and varying in size from one inch to "three and a half inches in length;" these proved to be male and female of the same parasite, producing young similar to those found in the blood. The smaller tumours contained younger and only partially-matured parasites; and the pitting and sacculation of the aorta is to be attributed to the death, softening and absorption of the parasites and their envelopes. The larger tumours containing the mature parasites, the smaller tumours containing the immature animal, and the pitting and sacculation are all to be found in the same aorta. The fourth condition described was found once only; a gland near the origin of the left carotid artery was enlarged and softened, and contained five mature specimens of the nematode. With regard to the parasites in the tumours of the aorta Dr. LEWIS remarks, "Sometimes they may be seen to "have crept outside the tumour, lying between it and the serous covering investing the artery,

“or a parasite may be seen emerging through a minute orifice communicating between the tumour and the interior of the aorta and swinging itself across the lumen of the artery. I have observed the channel of the aorta almost entirely blocked up after death by a clot which had formed around a worm in this position”; and again, “with reference to these embryos, it may be further remarked that the thickish, yellowish fluid in which the mature worms are imbedded may be squeezed through the orifice in the tumour (usually found without difficulty) communicating either with the aorta or œsophagus, according to its anatomical relations. In this way innumerable ova may be made to pass into either channel, as the fluid is well charged with eggs in all stages of development.” This explains the manner in which the immature *filariæ* obtain entrance to the circulation in which they are found in such prodigious numbers.

Applying these facts in the history of the canine hæmatozoon to that of man, we are justified in assuming that in some similar manner the *filaria sanguinis hominis* is lodged and obtains access to the blood; that the mature nematode is lodged in the walls or neighbourhood of an artery, vein, or lymphatic, and through a rupture in the lining of such vessel it pours its brood of ova or immature *filariæ* into the blood, where they may be afterwards found when searched for.

Thus, it would appear that, at one time at any rate, there is connected with the circulation a large parent nematode, probably fixed and enclosed in a fibrous envelope; and a whole crowd of minute immature *filariæ* floating about in the blood. Can we refuse to see in either the one or the other the cause of the diseases with which we have found them associated? I think not. Their association is too frequent to be accidental. One or the other must be considered the etiological cause of these diseases. Which of these, parent or progeny, is the cause? The latter are so small that they can easily pass through the capillaries; they are unprovided with any boring apparatus, so that they are not likely to pierce lymphatics and allow the contents to escape; any disease they could produce by their mechanical presence would be of a hæmorrhagic and not of a lymphous nature; they have been found in blood after all symptoms of chyle in the urine have disappeared and in cases where there was no lymphatic disease; their congeners in the dog seem to be associated with no particular disease, the “host” being often in the enjoyment of good health. Such facts, I think, militate strongly against the supposition that the immature *filariæ* are the cause. As regards the parent nematode, I think otherwise. We have seen that in the dog a great amount of local mischief is done by its presence in the thoracic aorta; tumours and even the animals themselves project into the circulation, and the walls of the vessel are eroded and sacculated. If such and so great damage is done by the canine nematode to its favourite nidus, we may infer that something similar occurs in the case of the human subject. We do not as yet know the seat of the parent parasite, but I suppose it to be on or in the lymphatics, the receptaculum chyli, or thoracic duct, or some blood-vessel in the neighbourhood of these. I conjecture that as the animal is developed it becomes surrounded by an increasing tumour, as in the dog, and that this tumour, though perhaps a very small one and easily overlooked at a post-mortem examination, by pressure on the outside, or by bulging into the wall of a lymphatic vessel, causes an obstruction to or perhaps a complete stoppage of the flow of lymph. The calibre of the lymphatics, and even of the thoracic duct, is very small, and could easily be obstructed by a minute body. In consequence of this interference to the progress upwards of the

lymph, there is accumulation on the distal side of the stoppage, dilatation of lymphatics, perhaps rupture in parts where their walls are very thin or superficial as in the scrotum (lymph scrotum), or bladder (chyluria), or perhaps only stasis and accumulation of lymph materials which undergo a certain amount of organisation (elephantiasis). At the same time the young *filariae* escape into the channel of the lymphatic, some on the proximal side of the obstruction, and appear in due course in the circulation; some on the distal side, and these finding their way down the dilated vessels, or carried by the regurgitating lymph, appear in the urine or discharge from the scrotum. After a time the parent nematode dies or escapes; the tumour that enclosed it is absorbed or disintegrated; the lymph channel again becomes patent, its circulation is renewed, and the chyle disappears from the urine, the scrotum no longer discharges, or the elephantiasis ceases to increase. Other nematodes progress in their development (in the thoracic aorta of the same dog they may be found in all stages of development); the lymph channel is again obstructed (perhaps in a different place, producing the appearance of metastasis, a thing well known to happen in elephantoid disease), there is a fresh attack of chyluria, lymph scrotum or elephantiasis.

Such is a short statement of some of the facts I have collected on this subject; and if they do not admit of the interpretation I have put upon them, yet their association must be regarded as most significant. Post-mortem evidence is still wanting, and it is a matter for regret that the prejudices of the Chinese deny us the chance of obtaining it here. However, from India, where the natives are not so averse to their dead being dissected, we may hope, ere long, to have the remaining difficulties and obscurities cleared up.

The only fact in the history of these diseases, which the hypothesis I have propounded does not satisfactorily explain, is the occurrence of inflammation and fever in elephantoid affections. Perhaps the distension of the lymphatics is sufficient to account for this. The fever we may look on as secondary. Everything else, as far as I know, tallies with such a hypothesis. For example, a peculiarity of elephantoid disease is that it has a great preference for certain parts, the lower extremities and scrotum, and (including chyluria) the urinary organs. Dr. WARING, in some very valuable statistics, has shown that only about five per cent. of cases presented the disease in any other part, and his statistics apply to nearly 1,000 individuals. His observations are confirmed by Dr. DAY. This fact supports the hypothesis I have given, inasmuch as it shows that this nematode, like other parasites, has a favourite habitat, though occasionally to be found elsewhere. I think that it also points to the road travelled by the animal seeking its nest in the nearest suitable lymphatic; that, like the Guinea worm, it penetrates the skin from without, such parts being most frequently attacked as are most exposed to substances containing the animal.

The geographical distribution of the disease accords entirely with what we know of some other allied diseases well known to be produced by parasites. Certain localities alone produce them. Elephantoid disease thus resembles in its distribution at least two well-known parasitic diseases, the hæmaturia of the Cape, Mauritius, Egypt, and the Brazils, so well described by GRIESINGER, Dr. John HARLEY and BILHARZ as depending on the *Bilharzia hæmatobia*, and the Guinea worm disease.

There is some evidence, too, that elephantiasis has been imported to a country where it did not previously exist—I refer to Barbadoes. On this subject, Dr. HENDY says, in 1784, "The

"glandular disease was unnoticed in this island till about eighty years ago. The first white person in whom it was very conspicuous, as I have been informed by credible persons of advanced age, was named Francis BRIGGS, though better known as 'Christopher Columbus.' It was, indeed, with difficulty I could find out his real name. It was so uncommon a thing at that time to see a person with these large legs, that this poor man's name was used as a bugbear to frighten children with. It is not improbable that the negroes might have been affected with this disease, and their complaints not sufficiently attended to. I have made very strict inquiry and have not been able to discover, with any degree of certainty, that it ever did appear in the neighbouring islands, except only in one instance, which I shall mention." He conjectures that the negroes brought it with them from Africa. If this is really a fact, what can better explain it than the supposition of its parasitic origin?

The bearing of the parasitic theory of these diseases on prophylaxis and treatment, is too obvious to require more than mention.

Continuation of series of Lymph-Scrotum cases.

17.—PHHE-LIM; a cook; æt. 43; native of Amoy; enjoyed good health until the autumn of his 13th year, when he was attacked with fever and ague, the illness lasting for more than 30 days, and had similar attacks again when 14 and when 20 years of age. Within 24 hours of the onset of this last attack, swelling and pain of the inguinal glands and scrotum began and continued for about 10 days, the scrotum becoming covered with vesicles. From this time up to his 37th year, sometimes once a year, sometimes twice a year, had attacks of fever of about a month's duration. On the 5th of March 1875, the fever, with inflammation of glands and scrotum, appeared as usual; one of the vesicles gave way and a large quantity of white fluid was discharged; after this the swelling of the scrotum subsided and the vesicle healed up. By the 20th of May the scrotum had again become distended, and on that day a vesicle ruptured again allowing a large quantity of fluid to escape, as before. On the 25th of June he came to hospital; his scrotum had the usual appearance found in this disease; on a vesicle being pricked, about 40 ounces of white coaguable fluid escaped; on the following night had fever and ague.

18.—TCHUG-BAN-HOK; æt. 48; schoolmaster; native of Haitêng; enjoyed good health up to his 41st year, when, during the winter, he had an attack of fever and pain in his scrotum, in the lower part of which an abscess formed; after 3 months the abscess burst, discharging about 10 ounces of pus; it healed up rapidly. In his 43rd year had fever and ague with pain and swelling of the inguinal glands and scrotum; these subsided after a few days. Every year since then, during the summer, he has had similar attacks of about a month's duration. In his 48th year, during one of these attacks, vesicles appeared on the scrotum; four months afterwards a vesicle burst and discharged more than 10 ounces of white fluid; since this the scrotum discharges regularly every 20 or 30 days. On coming to hospital on 26th June, his scrotum presented the usual appearances; a vesicle was opened and 15 ounces of fluid escaped.

19.—LIM LONG; æt. 43; a field labourer; his father died of dyspepsia, his mother and brothers of fever. From birth to his 24th year he enjoyed good health; he then contracted a fever and ague which did not leave him during more than a year; since then his left testicle has been slowly enlarging. When 40 years old had fever for 24 hours, with pain in

the left groin and left side of the scrotum; in both of these situations abscesses formed, and bursting after about 20 days, discharged several ounces of pus; sinuses healed up in about a month.

4th May, 1875.—Came to hospital to consult about his left testicle, which had been slowly enlarging since his 24th year; hydrocele was diagnosed and tapped; 20 ounces of clear fluid removed; was not injected, but patient told to return before the hydrocele had become as large as previously.

18th June.—Patient returned; on examining the scrotum previous to tapping and injecting iodine, numerous small lymph vesicles were found on the lower and back part; one was opened and milky fluid escaped. It is probable that they had been overlooked on 4th May. Patient had never seen or felt them.

20.—PING-TO; æt. 44; native of Chinpho, a pedlar, whose usual food was rice, sweet potatoes, salt fish and salt mustard plant, with an occasional meal of pork. He states that he was healthy up to his 18th year, when he was attacked with fever and ague, which continued to recur once every four months, for 3 or 4 days, up to his 28th year, when it left him. When 39 years old the ague returned, accompanied with pain and swelling of the scrotum, also great itching of the skin. Numerous vesicles formed on the surface, some of which bursting discharged about 50 ounces of clear fluid. From this time onwards his scrotum would enlarge, accompanied with fever, once every 20 days or 30 days, or it might be 2 months, when vesicles would form and discharge a yellow fluid, each time about 30 ounces. During this time the skin gradually became thicker. On admission to hospital the scrotum presented the usual appearances of elephantiasis, weighing from $1\frac{1}{2}$ to 2 pounds.

21.—CHHAN-CHIN; æt. 47; native of Chian-an; field labourer, whose usual food was rice, sweet potatoes, salt mustard plant, with occasionally some fish and pork. His father died of dyspepsia, his mother of fever. He enjoyed good health up to his 18th year when he was attacked with fever and ague, with pain and swelling of the left inguinal glands and scrotum. A small abscess formed in the left side of the lower part of the scrotum which burst after three months, discharging some pus. A few days afterwards the abscess healed up. A year after, he had fever and ague again, accompanied with pain and swelling of the inguinal glands and scrotum. From this time he was subject to attacks of fever and ague almost every month, up to his 28th year, when the fever continuing longer than usual, the scrotum became covered with many small vesicles. When 31 years old a vesicle burst, discharging a large quantity of white fluid. After a few days the vesicles filled as before. From this time, once in 30 or 40 days, a vesicle would burst, discharging from 10 to 50 ounces of fluid. When 40 years old the discharge stopped, but the scrotum commenced to enlarge. It continued to increase, with an occasional attack of fever and ague lasting 6 or 7 days. The tumour getting inconvenient from its size, he came to hospital 21st May, 1875. On 4th June the tumour was removed. The tumour weighed 8 lbs. and presented the usual appearances of elephantiasis. During the operation ESMARCH'S bandage was used. On the following night there was slight bleeding, easily controlled. The patient made a good recovery.

22.—TAN-CHOAN; æt. 28; native of Amoy; his usual food is rice, sweet potatoes, salt mustard plant and salt fish. He had good health up to his 17th year, when during the

summer he had an attack of fever and ague, accompanied with pain and swelling of inguinal glands on both sides, and of the scrotum. The swelling of the glands subsided, but the scrotum became covered with small vesicles. From this time he was subject to attacks of fever and ague, sometimes once in 30 days, sometimes once in 3 months, with inflammation in the parts as before. After 10 years a vesicle burst and discharged about 20 ounces of white fluid. From this time the scrotum would enlarge once every 5, 10 or 30 days and discharge from 10 to 20 ounces of fluid.

October, 1875.—Came to Hospital.

B.—NOTES OF CASES OF UNUSUAL MILK SECRETION. By Dr. MÜLLER.

SOME months ago my attention was attracted by a chance remark made by one of the missionaries at Amoy, that a Chinese woman whom I knew to be old, was suckling the orphan child of a deceased relative. On enquiry, to my surprise, I found that the woman had had no child of her own for many years; indeed, her husband had been dead a long time, and she was of good character. Enquiry led to the conclusion that it is by no means a rare circumstance in these parts for a woman without milk to bring the secretion back for the sake of suckling an infant deprived in some way of its own natural aliment. I have always got the same answer: "Yes, the practice is common; I knew So-and-so, and So-and-so, &c., who—" and so on, with the usual story. To test the truth of all this I induced three respectable women to try and bring back their milk, and furnished them with money to buy what they said was the diet proper to assist in producing the desired result.

Case No. 1.—LIEN So; married; æt. 30; husband abroad for a year; one child 8 years old, none since, nor any abortion or miscarriages; child suckled to 2 years old, so that for six years the mammæ have been inactive. When I saw this woman in the middle of last March, the mammæ were shrivelled, indeed very little but loose skin. At the commencement of the last week in March she commenced to bring back her milk for the purpose of suckling a foundling she wished to adopt, aged 6 months. She ate piptupe stewed with a milk thistle, as well as her usual rice and fish, and applied the infant to the breast constantly. For the first ten days she had to apply to her milky neighbours to give her infant a meal twice or three times a day. At the end of this time, the milk began to be secreted in her breast and gradually increased in quantity up to May 11th, when I saw her and found the mammæ firm, well developed and yielding on pressure a free flow of milk. The child has now enough to feed on with the occasional help of a little rice water, and seems healthy and well nourished. During the time of this woman's lactation menstruation has entirely ceased, and there is no leucorrhœa. She felt a little lassitude during the hot weather, but looks quite healthy and well nourished.

Case No. 2.—; married; æt. 40; her husband is with her; has had children, the youngest 9 years old; one miscarriage since, 5 years ago. Suckled last child 3 years, but her breasts have been without milk for the last 6 years. When seen in the middle of last month the mammæ were mere bags of loose skin. She commenced at the same time as No. 1 to encourage the secretion of milk, and used the same means, with the addition of the boiled fruit of the tree melon, which in its unripe state has milky juice. She says her greater age necessitates stronger food to stimulate the breasts. She also took a foundling to adopt, aged 2 months. This woman's milk took much longer to bring on than No. 1, but by May 11th she had a fair quantity, nearly as much as the other. Her menstruation has not stopped, but is very small in quantity. No leucorrhœa. She looks well and says she is so.

Case No. 3 went wrong in health and had to abandon the attempt.

The milk of the first two cases was examined and found to be normal; S. G. 1030.

Whether the consumption of milky juice yielding vegetables has anything to do with the result is more than doubtful, but the Chinese always insist on using them.

As a pendant to Dr. MÜLLER's observations, I would cite the following case of artificially-induced milk secretion in a cow, which has been obligingly communicated to me by Dr. MACARTNEY of Nanking.

The cow in question was one of a lot of half a dozen which arrived from Sidney, N.S.W., about the middle of 1863. Her age was doubtful. It was not less than six years, and might have been nine or ten. She was not in milk when she was landed, but was supposed to be far advanced in calf, to which her lack of milk was attributed. The state of her udder shewed that she had had calves previously. She was tended for some time as if she were in calf, but afterwards, finding that this was not the case and not caring to wait until she would in the ordinary course of nature yield milk, I determined to make an attempt at producing it by artificial means. She was accordingly ordered to be regularly subjected to the usual manipulation attendant on the operation of milking. At first this, as anticipated, was attended with no visible result, but being persisted in, after two or three days, about a spoonful of a thick grumous fluid was drawn off. At the next milking this was more copious, thinner and less tinged with blood, and gradually, after a few days, the blood entirely disappeared, the fluid in all respects becoming like ordinary milk. From this out she was regularly milked and continued to give milk of excellent quality for a period of four years, and this without her having in the meantime had a calf, or being even applied to the bull. The supply was never so large as would probably have been yielded had it resulted from her having had a calf, but this I believe was due, not so much to the manner in which it had been induced, as to the want of care in milking her properly.

No stimulus excepting that resulting from the ordinary manipulation of milking was ever applied to the udder and teats, and no internal administration of drugs was resorted to. The animal was merely supplied with succulent and nutritious food such as is generally given to milch cows. From the time that the induction of milk was first attempted until it was finally established was about a week. It terminated only with the animal's life four years afterwards, when she was accidentally killed.

Though the induction of milk under such circumstances is unusual, it cannot be considered strange. The same thing might be done with any cow, and upon physiological grounds I believe it might also be done with a heifer.

It seems to me probable that in such instances as those adduced by Dr. MÜLLER, and in others less satisfactorily attested, such as that of a man yielding milk, which I have always regarded as apocryphal, the mental condition of the subject of observation counts for much, though its share must be indefinable. To state the proposition in a formal and general manner—there are many interactions of mind and tissue element which, though undoubtedly real, are absolutely inexplicable. Of course, this is not intended to touch in any way the question whether so-called mental phenomena are not themselves merely functions of physical states. But evidence is overwhelming that the proposition as formulated is true. The entire history of quackery confirms it. In PAGET's *Surgical Pathology*, 3rd Ed., p. 35, there is a remarkable case of a woman from whose shoulder a fatty tumour had been removed. After recovery from the operation she took it into her head that the tumour had been cancerous and would return. A large, firm, painful tumour did actually form in her breast, but PAGET "having heard all the account of it, and how her mind constantly dwelt in fear of cancer, made bold to assure her, by all that was certain, that the cancer, as she supposed "it, would go away; and it did become very much smaller, without any help from medicine." When induration of the gland thus disappears under an altered mental condition, there seems no difficulty in anticipating that its normal secretion might, under an analogous stimulus be re-established. There is a case recorded by CARPENTER (*Mental Physiology*, p. 609) of a lady whose milk was leaving her, her baby being 13 months old, but in whose right breast the secretion was re-established under mesmeric influence, and continued so abundant that "in order to restore symmetry to her figure" the same change was in like manner induced in the left breast, for nine months after which she had a copious supply of milk. And, as additional examples, the subservience of the secretions to the emotions is proved by our daily experience of the effect of sorrow in producing tears, of apprehension in producing an increased secretion from the kidneys,

and conversely of the arrest of the salivary and gastric secretions under the influence of shock or excitement. To sum up—the mere volitional direction of the consciousness to a part even independently of emotional excitement, “suffices to call forth sensations in it, which seem to depend upon a change in its circulation.” “Stimulated attention,” says Sir Henry HOLLAND, “will frequently give a local sense of arterial pulsation where not previously felt, and create or augment those singing and rushing noises in the ears which probably depend on the circulation through the capillary vessels.” “If,” to quote CARPENTER again, “this state (of expectant attention) be kept up automatically * * the change may become a source of modification, not only in the functional action, but in the nutrition of the part.” And as secretion is but a modification of nutrition, the phenomena are thus accounted for if not explained.

It is obvious that mental conditions such as those above referred to may act either beneficially or hurtfully. That is to say, while disease at first imaginary may be called into being, and gradually become real, structural alterations, either coarse or undetectable (functional) may, as in PAGET's case above cited, be cured by treatment addressed only to the mental state. “Let no one,” says PLATO in *Charmides*, “persuade you to cure the head, until he has first given you his soul to be cured by the charm. For this is the great error of our day in the treatment of the human body, that physicians separate the soul from it.” It is true that, in ordinary practice, we have far more frequently to observe the converse condition. There is often an interval before the friends and attendants of a sick person come to regard without some little impatience the apparently causeless irritability and even the total change in character which occasionally accompany various diseases.

For which digression from Dr. MÜLLER's text I trust that I shall be forgiven.

R. A. J.

C.—NOTE ON THE ETIOLOGY OF CANCER. By R. A. JAMIESON, M.D.

As the 4th Appendix to No. 3 of the *Reports of the Medical Officer of the Privy Council and Local Government Board* (New Series, 1874), there is published an important record of anatomical investigations into the etiology of cancer pursued by Dr. CREIGHTON. After pointing out the limitation by continental pathologists of the term "cancer" to tumours of an epithelial type of structure, including mammary and gastric cancer, and detailing the attempts unsuccessfully made to ascertain, by means of artificial production, the agents and channels of infection as well as, by the same means, to observe the successive stages in the development of the disease, the author proceeds to describe the results of the investigation of secondary growths, chiefly in the liver, obtained in the ordinary way of post-mortem examination. As every one knows, it is usual to find in an organ secondarily affected, nodules in all stages of development, from the initial up to the most advanced. It is only requisite, in order to render conclusive the deductions drawn from such investigations, to establish the identity of the secondary tumours with the primary. This being established, two theories present themselves to explain the secondary formations. The first may briefly be indicated as that of *specific cell proliferation after migration*, the second as *dyscrasial cell transformation*. Inasmuch as the author discovered cells in all stages of transformation from normality up to the fully-developed cancer cell, the latter theory is the one that he adopts. Here again two opinions are encountered; one, held by VIRCHOW, that the cells of the connective tissue are the elements which undergo transformation; the other, held by the author, that it is in the parenchymatous cells that the new growths take origin.

Given an elementary part or cell, its multiplication is effected by division of its protoplasm. This according to circumstances will be either a duplicative subdivision wherein the new cells are reproductions of the old and hyperplasia is the result, or an endogenous cell formation, wherein the product may depart widely from the type of the parent cell, and the result is heteroplasia. In the former case the law of continuity which is best illustrated by the repeated transverse division of the organisms found in variolous lymph, is observed; in the latter that law is abrogated, so that from parent cells, cells functionally diverse are produced by a process of evolution under laws about which nothing is known. The endogenous mode of cell growth is frequently exemplified in the vegetable kingdom, and the author shews that, under normal conditions and extending the term, as appears perfectly legitimate, to a process in which there is a provision for a totally fluid product instead of for the production of cells, it occurs likewise in the animal kingdom. He thus brings all secretions in the epithelial cells of mucous surfaces under the law, whatever it may be, of endogenous cell formation. For the illustrations and arguments the original must be consulted.

The mode of endogenous cell formation is distinguished by the collateral production of a vacuole containing a fluid the result of a transformation of the cell protoplasm. Accordingly the author adopts the term "Vacuolation" to indicate the process. He exhibits several examples of liver cells, still recognisable as such, but presenting various degrees of vacuolation, the substance

of the cell being more or less excavated to form a vacuole occasionally containing within it a free mass of germinal matter, and having generally at one side or one pole a mass of protoplasm of varying form, which is sometimes distributed uniformly round the vacuole. In most of his specimens, which had been preserved in spirit and afterwards mounted in Canada balsam, the vacuoles had the appearance of being empty, and the presumption is that they were originally occupied by fat, which had been dissolved out. In some, however, the vacuoles were filled with a thin, granular protoplasm, or (completing the transformation) with solid protoplasmic contents, substituted for the original oily matter or attracted to or secreted by the peripheral protoplasmic mass. A similar substitution of an albuminous fluid, the author remarks, has been observed in the subcutaneous fat, and in the medulla of bone.


The above specimens were derived from areas of hepatic tissue immediately surrounding developed superficial nodules, and corresponding exactly to the usual outline of tumours in the periphery of the organ. These areas of general vacuolation of the parenchymatous cells were definitely bounded from the adjacent liver tissue, which was normal. There was no doubt of the identity of these various cell forms with liver cells on the one hand and with tumour cells on the other, for they occurred in unmistakeable liver cylinders, and amidst mature spindle and giant cells. But various cases arise. Where vacuolation is so extensive that only a small round cell survives within the outline of the original liver cell, the tumour element commences at the lowest stage of "indifference" and may go on to attain the characters of a cell in the primary growth, or may abort. Where vacuolation has produced a signet-ring type of cell, the peripheral mass may detach itself from the slender ring of the vacuole which disappears. Or, as before noted, where the wall of the vacuole is more substantial, as evidenced by its possessing a greater or less capability of being stained, the vacuole does not break up or disappear but can be identified in the mature tumour cell.

Thus it appears that secondary tumours in the liver result from the substitution of the endogenous or heteroplastic mode of cell growth for the normal plastic activity of the liver cells, whereby the organ is either maintained at a certain point or at most undergoes a simple hyperplasia. What, then, is the cause of the substitution? The author compares it to a "spermatic" influence produced in some unknown manner by the parent tumour, the elements of which differ from those of the secondary tumours in the important point that they are histogenetically the equivalents of the cells proper to the situation in which they grow. Thus primary sarcomatous tumours originate in connective tissue structures, and primary epithelial tumours in mucous membrane.

Lastly, extending this theory to account for malignant tumours of epithelial parts, the author takes the mammary gland as an example. The epithelial cell undergoes vacuolation, extending to its extreme limit and producing the normal milk secretion, or incomplete where there is a co-ordinate protoplasmic mass, as in the colostrum corpuscle, or to a still less extent when the solid element will preponderate. Thus, by a normal or abnormal metaplasia, there would be produced from the epithelium of the gland, non-epithelial, or in other words heteroplastic elements, and thus may be explained the otherwise inexplicable "atypism" of the epithelium of the gland to the growth of which WALDEYER ascribes mammary cancer.

Through the kindness of Dr. LITTLE, I have recently had an opportunity of going over the ground thus explored by Dr. CREIGHTON. A case of cancer of the rectum having proved fatal in

the General Hospital, I obtained portions of the liver at the post-mortem made twelve hours after death. The specimens thus obtained were washed in distilled water and left in that fluid for three hours and a half, when sections were made. The region of the liver examined was the entire thickness of the lower three inches of the right lobe at its internal margin. The organ had not been removed from the body, but was manifestly much enlarged in every direction. Close to the edge of the piece removed there was a cylindrical nodule going through the entire thickness, and $1\frac{1}{4}$ inch in diameter. On both surfaces were several small nodules about the size of peas, projecting about $\frac{1}{16}$ inch from the surface, the peritoneum being adherent to each, but capable of being stripped off the intervening region. The peritoneal investment of all the portion of the gland examined was thickened and opaque. To the naked eye the liver substance was deeply congested round these nodules for a distance of from $\frac{1}{8}$ to $\frac{1}{2}$ inch, according to the size of the nodule.

Sections were first made through the fresh, apparently healthy hepatic tissue at some distance from a nodule. Each field presented an abundance of large parenchymatous cells full of brownish-yellow granules, with interspersed oil globules, some with a brilliant nucleus, some without, or perhaps obscured by the granular matter. In two out of three slides there were found a few true signet-ring forms very large. In all there were apparently withered hepatic cells lying in the neighbourhood of what seemed to be escaped nuclei. Fat globules were very numerous, while closely packed linear and curvilinear groupings of red corpuscles, answering, no doubt to gorged capillaries, were embedded in a finely granular material. In one field there was a curious mass of round cells of the size of white corpuscles, several of which were bottle-shaped, , and one cell of the same character but presenting two nipple-shaped protuberances from its surface.

The next group of sections was made through the smallest nodules, including some of the surrounding tissue. These sections were left for six hours in a covered vessel filled with rectified ether. On removal, fresh ether was poured over them, and they were then carefully washed in distilled water. At the edge of the nodule, but within the as yet untransformed tissue, were multitudes of polygonal cells, mostly filled with granules, and in a few places arranged like a mosaic pavement, obviously in consequence of mutual pressure. A few broken down red corpuscles were present, and numerous large amorphous masses offering no recognisable structure. There were no giant cells in the sections examined. The signet-ring forms were also absent, but from the result of colouring I imagine that the amorphous masses just mentioned were due to the precipitate collapse of such cells under the influence of the ether. The transition to apparently healthy liver structure was very gradual.

A third group of sections was made in the same way as the last, but these sections, after being washed in distilled water, were transferred for four hours to an ammoniated carmine solution. They were then left in glycerine for four days, and examined on the fifth day. At its margin the nodular tissue was seen to consist of a fibrous stroma forming irregular meshes, scattered through which were innumerable cells of all sorts of shapes, frequently aggregated into masses. Here, also, were found many carmine coloured dumb-bell cells, several with brilliant nucleus, and of these many were apparently bulging the contour of the cell. There were many brilliantly coloured masses of varying shape and size.

I was unwilling to let the opportunity slip, but much allowance must be made for the imperfection of observations requiring for perfection much time and nicety, but in reality made amid frequent interruptions and the pressure of other engagements. But, so far as they go, these bear out the results obtained by Dr. CREIGHTON from long preserved specimens, and derive some value from having been made upon perfectly fresh sections. The power employed was a COLLINS'S $\frac{1}{8}$ objective, with C eye-piece.

D.—NOTE ON THE USE OF THE ROOT BARK OF AILANTHUS IN DYSENTERY. By
M. E. DUGAT, Physician to the French Legation in China.

(Communicated through Dr. PICHON.)

AFTER having made a series of experiments, beginning in the month of November 1872, upon the Ailanthus, which satisfied me as to its value in the treatment of dysentery, I hastened to communicate the result of my observations to many other physicians in China, as well as to the naval surgeons stationed at Chefoo during the summer of 1873. Since then the drug has been employed by several physicians who for the most part have obtained results worthy of note. Dr. DUDGEON, moreover, lately contributed an article on Ailanthus to the *Customs Medical Reports* (No. 9, page 28), which has doubtless made its use familiar to practitioners at the out-ports. In the article referred to all needful information is given with regard to the botanical history of the plant, and its uses in the Chinese materia medica. I need not go over this ground. I will therefore merely extract from a report addressed by me in 1874 to the Minister for Foreign Affairs, such passages as may be of interest to physicians in China, and which will enable them to administer the drug in the same way that I have employed it. I should remark that I have in no wise modified the mode of preparation and of administration as described to me in 1872 by one of the Lazarist Missionaries at Peking.

Mode of Preparation.—Take from 15 to 20 drachms of the fresh bark and pound it in a mortar, aiding the operation by the addition of a few spoonfuls of cold water. Express the pounded bark through linen. The juice thus obtained is the remedy.

Mode of Administration.—The bottle being shaken, a teaspoonful is taken in a cup of weak tea for four consecutive mornings, fasting.

Diet.—Milk exclusively during the earlier days, but farinaceous food may be gradually introduced.

The drug may be used for four or five days, but the restricted diet must invariably be maintained for at least fifteen days, at the end of which period, if the disease has not yielded, the treatment may be renewed as before. Dr. ROBERT, fleet surgeon on the China station (1873), gives as the result of his experience on board the *Belliqueuse* that in default of the fresh root and of milk, the dried root may be administered, the diet meanwhile consisting of slops. He has also modified my formula without vitiating the results. Nevertheless I would advise the use of cold water in the preparation, for my first patient informed me after his recovery that unknown to me he had taken the Ailanthus in decoction and had derived no benefit from it.

Case 1.—M. de B., who had previously suffered from acute dysentery in Europe, which had left behind an irritable condition of the bowels, contracted dysentery in August 1872, after a long ride through heavy rain. From that time until January 1873, when Ailanthus was prescribed, the various remedies employed proved of but slight and temporary service.

January 4th, 1873.—He was now passing eight stools daily, containing bloody mucus, epithelial debris, &c. A teaspoonful of the juice was administered, and milk diet ordered. In the evening he had one stool, somewhat consistent, containing mucus debris, but very little blood.

5th.—Medicine and diet continued. In the evening, one formed homogeneous stool, no mucus, and very little blood.

6th.—Medicine and diet continued. At 2 P.M. a stool similar to the last, shewing some tendency to constipation.

7th.—Medicine omitted; diet as before. No stool until the 10th.

10th.—At 10 A.M. a fairly good stool, and at 10 P.M. a stool perfectly normal.

From this out, the diet being continued, one stool was passed every day. As there was some tendency to constipation I ordered gentle laxatives, and added some farinaceous articles to the diet. One glass of sound wine was allowed each day during the treatment. In less than 15 days the patient was perfectly well, and resumed his ordinary diet from which he had been debarred for six months. It would seem from the speedy threatening of constipation that even a smaller quantity of the drug would have sufficed in this case.

Case 2.—B., arrived August 3rd, 1872, from Saigon, where 10 months before he had contracted dysentery from which he was still suffering. My previous experience in Saigon sufficed to satisfy me that his case was a grave one, but residence in Peking improved him slightly. However, in spite of treatment, his dysentery persisted. He passed every day six or eight stools—pultaceous, mingled with pus and mucus debris and occasionally containing blood. Such was the condition of his rectum that injections of nitrate of silver produced no sensation of pain, yet his general condition was not very bad, and he retained his appetite. Such an appearance of health is, however, generally hurtful to dysenteric patients, for in defiance of advice they often continue the diet of health with the result of producing constant relapses and even occasionally perforation of the bowel. At the commencement of treatment by Ailanthus, the disease had already lasted for a year.

1st day.—A teaspoonful of the juice; milk diet. Two stools during the 24 hours. They were chrome yellow and of the consistence of cooked spinach, and contained two hard masses, quite grey on being crushed.

2nd day.—Medicine and diet as before. Two stools same as yesterday.

3rd day.—Medicine and diet as before. One homogeneous formed stool. The treatment was continued until the 6th day, when there was no passage.

7th day.—Medicine omitted; same diet. One stool nearly healthy, but not so satisfactory as the last. Up to the 12th day the stools were one or two daily, some natural, others containing a little blood.

12th day.—Medicine repeated; same diet. Two healthy passages.

13th day.—Medicine repeated; same diet. Two healthy passages. The medicine was stopped, and arrowroot, &c., added to the diet. The patient rapidly recovered, and is now perfectly well.

During 1874, I used the drug in two cases, one a dysenteric diarrhoea, the other a dysentery contracted at Saigon. Both recovered rapidly.

Case 5.—R., aged 27, a healthy man, sought advice on the 15th August 1875, for acute diarrhoea of some days standing. He was passing from 20 to 25 stools in the 24 hours. No improvement followed ordinary treatment, and by the 15th day acute dysentery of a severe form with high fever, was established.

16th day.—A teaspoonful of the juice; rice and milk diet. The medicine was rejected. Intense colic.

17th day.—Medicine repeated, in milk, and retained. Same diet. One large stool of a grey colour, and but little consistence, was passed after severe griping.

18th day.—Medicine repeated; same diet. A hard stool was passed.

19th day.—No stool. Castor oil. From this out one healthy stool was passed daily, but the rice and milk diet was continued for twelve days longer, that is, until the 17th September, when blood and mucus reappeared with colic. The drug was again exhibited. After the third dose the passages were of normal consistence, but as a little blood remained, a fourth dose was given. By the end of the month there was no doubt as to the permanence of the cure.

An attentive perusal of the above cases will satisfy the reader that although doubtless the milk diet counts for something in the treatment, the results obtained are not due to it.

E.—NOTE ON A CASE OF RECOVERY FROM RINDERPEST. By J. H. BLAIR, Esq.

THE cow which is the subject of the following note was in the country when the first symptoms of the disease declared themselves. I had her immediately brought in, and placed in the same stable with two other animals, both of which were in a very advanced stage—so advanced, in fact, that they died next day. My object in removing her was to avoid infecting another stable, and I considered it immaterial as regarded herself where she was kept, as I had no hope of saving her. As soon as she was in her new quarters I administered an enema of soap and warm water to remove accumulations in the lower bowel, which I had observed in previous cases had always preceded the onset of violent purging. Her eyes were severely inflamed, thick mucus was pouring from the nose, and the vagina was likewise in a state of inflammation. In the afternoon of the same day, having meanwhile come across a recommendation to try quinine, I give her one drachm of sulphate of quinine suspended in hot water, and repeated the dose after an hour. The medicine was merely poured down her throat. Next morning, 20 hours after the first dose, she was decidedly better, much less stupid and listless, and began to eat. Dr. HENDERSON, who has had such large experience in these cases in this place, saw her now, and considered her cured. On this day violent purging of most offensive stuff set in, but did not appear to weaken her. The fæces gradually changed in character and by the fifth day were healthy. I continued the treatment for three days, giving the quinine in gradually decreasing doses until I found her ruminating. On the fifth day her appetite was completely re-established, so that her craving for food could hardly be satisfied. She was several months in calf when she was seized, and ten days after her health was restored she aborted. The calf was dead, but she is now (28th December) in full milk.

Although this is for the present only a solitary case, the rapidity of improvement after the administration of quinine, joined with the inevitable fatality of the disease when left to itself, convinces me that to the quinine alone was her recovery due. I only regret that I did not get the hint sooner for the sake of the rest of the herd.

F.—DRS. MÜLLER and MANSON'S Report on the Health of Amoy for the half year ended 30th September, 1875.

WE are indebted to the Harbour Master for the following observations of temperature during the past year. The observations were made in the Custom House on the Amoy side of the harbour, where the temperatures in summer are, we think, about two degrees higher than on Kulangsu Island :—

—	HIGHEST.	LOWEST.
1874.		
October,.....	91°	61°
November,.....	84°	47°
December,.....	82°	46°
1875.		
January,	70°	40°
February,	70°	46°
March,	78°	47°
April,.....	81°	53°
May,	90°	58°
June,	92°	76°
July,	93°	77°
August,	95°	79°
September,	93°	72°

The temperature of the summer and autumn months has been higher than the average of former years. With this higher temperature we have noted the absence of thunder and rain during the afternoons and evenings.

The health of the Chinese population of Amoy and neighbourhood has been good, so far as we have been able to observe. During the months of July, August and September there was, perhaps, more than the usual amount of abdominal complaints—choleraic diarrhoea, dysentery, &c.

Among foreigners we have to notice the occurrence of 4 cases of typhoid fever: 1 case on shore, 3 afloat—1 case imported from Shanghai, 2 cases on board *H. M. S. Hart*, 1 case, fatal, in a child.

Among Sailors—there have been three deaths, viz.:

- 1 *pneumonia*.
- 2 *chronic dysentery*.

Among residents—there have been four deaths, viz.:

- 1 an adult. *Laryngitis* and *œdema glottidis*.
- 1 *choleraic diarrhoea* during convalescence from typhoid fever. Child of 3 years.
- 1 *dysentery*. Child of 3 years.
- 1 *confluent small-pox*. Adult.

G.—Dr. J. R. SOMERVILLE'S Report on the Health of Foochow (Pagoda Anchorage)
for the half year ended 30th September 1875.

I.—METEOROLOGY.

I am indebted to the Harbour Master, Captain RENNELL, for the following observations taken at the Custom House, Pagoda Anchorage.

They are made from the instruments of the British Meteorological Society.

I would again suggest the desirability of supplying all the Customs Stations with correct instruments. These Reports have now reached the 10th number, and the result is a collection of valuable material referring to both native and foreign practice. The medical history of a country must, however, always be incomplete without accurate meteorology. From Canton in the south to Newchwang in the north, the reports embrace an extent of over 17 degrees of latitude, and, as may be supposed, great variety of climate is found within these limits.

In the meantime, I desire to express my appreciation of the active interest taken by the Customs authorities here in this matter during the last two years. I would particularly mention Mr. J. P. SAUNDERSON, who, in addition to his other onerous duties, has done most of the practical work.

I propose now shortly to make an analysis of the climate of the six months under consideration, and to compare it with that of the corresponding months of last year.

Analysis of the Meteorological Table.

(a.) *Barometer*.—The means for the six months are:—At 9.30 A.M., 29.769 in.; at 3.30 P.M., 29.758 in., and the mean of the two daily readings is therefore 29.763 in., against, for the same months last year 29.844 in., 29.776 in. and 29.810 in. respectively.

The highest reading of the barometer, 30.282 in., was made on the morning of the 30th April. Remark—"Wind N.E., cumulus, dull and cloudy; towards 4 P.M., rain and very hazy;" and the lowest, 29.382 in., on the afternoon of the 16th July. Remark—"A.M., fine, clear, agreeable weather; cumulus in light masses low down. P.M., falling barometer, heavy masses of cumulus, squally from N.E. 7 P.M., heavy showers, overcast, continued heavy rain, nimbus."

The range for the six months is therefore .900 in., against .837 in. for the corresponding months of last year.

The same diminution of pressure is noticed this season as the S.W. monsoon establishes itself, and the increase when N.E. winds set in. The minimum is reached, as before, in July.

(b.) *Thermometer*.—By comparing the maxima and minima daily means, the mean temperature of the several months is found to be as follows:—

	1875.	1874.
April,	64.1°	64.3°
May,	73.1°	72.2°
June,	82.1°	83.2°
July,	88.6°	83.9°
August,	84.7°	84.1°
September,	80.5°	81.4°

July was excessively hot this year. I notice in the monthly sheet that a maximum temperature in the shade of from 92° to 98° extends through the whole month, with scarcely a break. A mean temperature of 88.6° is a very high one. We observed several small birds fall dead from the heat this month.

June was not quite so hot as last year; May and August hotter.

The highest temperature in the shade, 98° , was reached on two days, the 4th and 5th July. Remark—"Very sultry, cirro-cumulus and cumulus in light, high masses." The highest temperature last year was 97.6° on the afternoon of 3rd August.

The lowest, 44° , occurred on the 1st April; the lowest last season was 47.6° on the morning of 2nd April.

The highest in the sun was reached on the 2nd August. Remark—"A.M. very pleasant morning, rather hazy and dull. 11, very sultry and warm. P.M., from noon very sultry; heavy masses of cumulus in S.W.; ends fine and clear."

The sheets show a very high solar radiation for July and August all through these months. The highest temperature in the sun last season was 166.2° .

A comparison of the maxima and minima means gives the mean difference of the day and night temperature for the several months as follows:—

	1875.	1874.
April,	15.0°	15.8°
May,	13.0°	11.7°
June,	13.7°	15.1°
July,	8.4°	15.0°
August,	14.5°	14.8°
September,	19.9°	12.6°

This shows excessively hot nights for July. I notice on the sheet for that month that the minimum temperature on two nights was as high as 90° and 91° respectively, while 88° and 89° are common throughout.

(c) *Hygrometer.—Humidity.*—From the abstract we find, by calculation, the mean difference between the dry and wet bulbs for the several months to be as follows:—

	1875.		1874.	
	At 9.30 A.M.	At 3.30 P.M.	At 9.30 A.M.	At 3.30 P.M.
April,	4.6°	6.5°	9.5°	8.9°
May,	4.9°	8.0°	4.2°	5.1°
June,	5.9°	6.1°	6.3°	7.2°
July,	6.2°	7.9°	6.1°	8.8°
August,	6.4°	9.1°	4.9°	6.2°
September,	2.4°	6.7°	3.3°	3.5°

The greatest difference between the bulbs occurred on the afternoon of the 17th April.

Dry Bulb,	70·5°
Wet Bulb,	55·9°
	<hr/>
Difference,	14·6°

The range last year was as high as 17·3°.

Humidity.—The abstract shows the mean humidity of the several months to be as follows:—

	1875.	1874.
	<hr/>	<hr/>
April,	·921	·655
May,	·798	·799
June,	·773	·738
July,	·741	·729
August,	·733	·785
September,	·764	·862

April shows a high degree of humidity; in the other months the two seasons do not differ much in this respect.

(d) *Rain.*—Rain fell on—

1875.	Amount.	1874.	Amount.
<hr/>	<hr/>	<hr/>	<hr/>
15 days in April,	5·138 inches.	10 days in April,	1·881 inches.
15 " " May,	3·551 "	20 " " May,	7·605 "
6 " " June,	4·878 "	8 " " June,	3·401 "
9 " " July,	7·230 "	7 " " July,	7·575 "
7 " " August, ...	4·050 "	12 " " August, ...	3·655 "
10 " " September, ...	2·310 "	15 " " September, ...	3·510 "
<hr/>	<hr/>	<hr/>	<hr/>
62 days.	27·157 inches.	72 days.	27·627 inches.

April was the great rainy month this season, instead of May. The greatest absolute amount fell in July, but the fall of over 7 inches in this month was made up of four days' heavy rain occurring after the excessive sultry weather in the first half of the month. The rains came earlier this season, and thus we were spared most of the muggy and horribly oppressive weather of average seasons. The total rain-fall, however, is within a fraction of that of last year.

(e) *Wind.*—The abstract shows the number of days in each month on which a particular wind prevailed. As usual, southerly and south-westerly winds are noticed as the prevailing ones in the middle of the hot season, and northerly and easterly at the beginning and end. The hot weather this year broke up with a terrific thunderstorm on the evening of the 10th September.

Abstract of Meteorological Observations taken at the Harbour Master's Office,

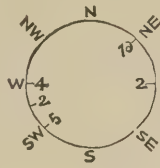

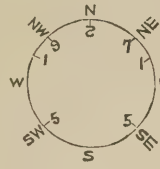
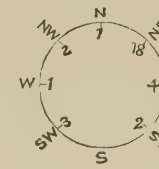






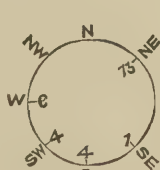





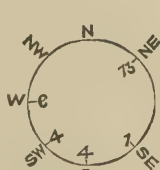





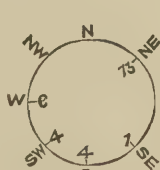





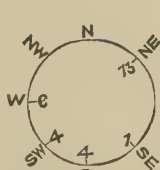



Latitude 25° 58' 22" North. Longitude

DATE.		BAROMETER, No. 272.		THERMOMETER.				HYGROMETER.					
		Corrected for Index error, Capillary attraction, and to temperature of 32°		Dry bulb, corrected reading for Index error, No. 172.		Wet bulb, corrected reading for Index error, No. 173.		Temperature of dew point, computed.		Elastic force of vapour in inches of Mercury.		Humidity 0—1.	
		9. 30 A. M.	3. 30 P. M.	9. 30 A. M.	3. 30 P. M.	9. 30 A. M.	3. 30 P. M.	9. 30 A. M.	3. 30 P. M.	9. 30 A. M.	3. 30 P. M.	9. 30 A. M.	3. 30 P. M.
1875.		inches.	inches.	°	°	°	°	°	°				
April,.....	Max.	30·282	30·153	77·4	88·3	71·5	76·0	68·9	75·5	·681	·883	·918	·925
	Mean	30·019	29·905	63·5	68·4	58·9	61·9	55·8	58·9	·457	·519	·768	·717
	Min.	29·823	29·678	48·3	50·8	50·3	51·8	43·9	46·5	·287	·320	·588	·293
May,	Max.	30·222	30·118	84·0	86·8	79·0	80·0	77·3	77·7	·935	·949	·934	·920
	Mean	29·699	29·837	74·4	78·4	69·5	70·4	67·3	68·7	·675	·707	·812	·784
	Min.	29·694	29·652	57·7	58·3	56·1	56·9	54·3	56·0	·422	·448	·592	·580
June,	Max.	29·994	29·888	90·3	93·7	82·6	86·3	80·3	84·5	1·033	1·182	·882	·939
	Mean	29·760	29·696	84·4	85·8	78·5	79·7	76·4	77·6	·910	·942	·774	·772
	Min.	29·640	29·544	73·9	74·9	71·3	73·1	69·8	70·7	·729	·750	·649	·609
July,	Max.	29·799	29·796	92·0	95·7	82·9	85·9	80·6	83·8	1·043	1·157	·930	·885
	Mean	29·704	29·646	86·6	90·0	80·4	82·1	78·2	79·5	·964	1·011	·763	·719
	Min.	29·415	29·382	77·8	81·9	76·2	78·4	73·0	75·5	·809	·911	·670	·589
August,	Max.	29·838	29·783	88·5	95·1	81·9	84·3	80·0	81·4	1·021	1·072	·923	·861
	Mean	29·699	29·647	84·7	89·6	78·3	80·5	76·1	77·5	·902	·914	·747	·719
	Min.	29·581	29·389	78·1	81·8	73·1	75·3	69·8	71·9	·731	·790	·643	·543
September,	Max.	30·001	29·963	88·2	92·0	82·4	84·1	80·6	82·6	1·043	1·091	·953	·921
	Mean	29·852	29·819	80·8	84·7	78·4	78·0	74·1	75·5	·831	·891	·784	·745
	Min.	29·680	29·616	73·2	71·9	69·7	70·2	67·2	69·3	·666	·716	·715	·594

NOTE.—Dew point, Elastic force of Vapour, and Humidity computed from Dr. ARJOHN'S Formula.

Pagoda Anchorage, Foochow, for the six months ended 30th September 1875.

119° 27' 40" East. Height above the sea, 30 feet.

SELF-REGISTERING THERMOMETERS.			Rain 24 hours.	WIND.				CLOUDS.			
Solar Radiation Thermometer No. 77072.	Maximum in Air.	Minimum in Air.		Velocity in miles per hour.	Force in lbs. per square foot.	Velocity in miles per hour.	Force in lbs. per square foot.	Summary of direction.		0—10.	
9.30 A.M.	9.30 A.M.	9.30 A.M.		Inches.	9.30 A.M.	9.30 A.M.	3.30 P.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.
°	°	°									
156°0	89°4	68°1	1°000	...	1°406	...	2°000			1 at 0 3,, 1 1,, 2 2,, 3 3,, 4 1,, 5 3,, 6 2,, 7 5,, 8 4,, 9 5,, 10	0 at 0 1,, 1 5,, 2 0,, 3 2,, 4 0,, 5 3,, 6 3,, 7 6,, 8 6,, 9 6,, 10
158°0	91°8	75°4	°630	...	°494	...	°845			0 at 0 0,, 1 0,, 2 2,, 3 1,, 4 2,, 5 3,, 6 5,, 7 10,, 8 7,, 9 1,, 10	0 at 0 1,, 1 0,, 2 0,, 3 2,, 4 2,, 5 4,, 6 10,, 7 5,, 8 8,, 9 0,, 10
132°0	79°7	66°7	°115	...	°140	...	°231			10	10
80°0	61°4	55°2	°000	...	°130	...	°700			7°26	7°26
159°0	93°8	78°5	2°183	...	1°380	...	6°967			4	4
146°0	89°0	75°3	°163	...	°366	...	1°097			4 at 10 1,, 9 3,, 8 2,, 7 1,, 6 2,, 5 2,, 4 9,, 3 5,, 2 2,, 1	3 at 10 2,, 9 2,, 8 2,, 7 3,, 6 1,, 5 3,, 4 7,, 3 8,, 2
113°0	80°4	67°5	°000	...	°023	...	°007				
164°0	98°0	91°1	1°600	...	°617	...	2°346			10	9
150°8	92°8	84°4	°233	...	°225	...	°580			3°8	4°2
107°8	84°0	76°0	°000	...	°038	...	°005			1	1
166°0	95°5	82°0	1°250	...	°629	...	1°561				
152°6	92°0	77°5	°130	...	°131	...	°331			10	10
131°4	83°8	72°0	°000	...	°002	...	°017			4°9	5
159°0	95°8	78°5	1°270	...	°636	...	1°004			2	2
144°2	87°5	73°6	°077	...	°138	...	°258				
90°1	74°5	66°5	°000	...	°015	...	°016				

Rain Gauge above ground 4 feet 9 inches.

II.—SUMMARY AND GENERAL REMARKS.

The general characteristics of the past season, then, are a very high day temperature during part of June, all July and part of August; a high night temperature, particularly in July; a high degree of humidity in April, a moderate one for the other months, and an average rainfall. It is a matter of general remark that the past summer was the hottest known to most of the oldest residents, and this opinion is confirmed by the above observations. With regard to season and disease, the latter was not appreciably increased by the heat, except in the case of intestinal catarrh and the various forms of what I term "heat malaise," to which I shall refer farther on. Only one of the deaths could be said to be due to climatic causes, and that was an old imported case.

It seems certainly surprising, in view of the excessive heat both by day and night of last summer, that we had not a large amount of sickness and a heavy mortality. The result of my experience here tends towards the general conclusion arrived at by other observers in hot climates, that a high degree of temperature alone does not necessarily produce wide-spread disease of a serious nature. Our immunity at this port is probably due to the moderate degree of humidity of the air during the hot months, and to the long, bracing winter that follows the advent of the N. E. monsoon. The physical conformation of the country (hilly, with a fine natural drainage) has also probably much to do with it.

III.—DISEASES.

NOSOLOGICAL RETURN for the half year ended September 30th 1875.

DISEASES	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	TOTAL.	DIED.	REMARKS
I.—GENERAL DISEASES.									
<i>Section A :—</i>									
Simple Continued Fever,	—	—	—	1	—	—	1	—	
Ague,	—	1	2	4	1	—	8	—	
Remittent Fever,	1	—	1	—	—	—	2	—	
II.—GENERAL DISEASES.									
<i>Section B :—</i>									
Rheumatism,	—	4	1	1	—	2	8	—	All chronic.
Syphilis,—Primary,	—	1	4	3	3	2	13	—	} Only 3 cases local—rest imported.
" —Secondary,	2	—	—	—	1	—	3	—	
Phthisis Pulmonalis,	1	—	1	—	1	—	3	1	All imported.
III.—DISEASES OF THE NERVOUS SYSTEM AND OF ORGANS OF SPECIAL SENSES.									
Locomotor Ataxy,	1	—	—	—	—	—	1	—	
Paralysis,	—	—	1	—	—	—	1	1	
Epilepsy,	—	—	—	—	1	—	1	—	
Ophthalmia,	—	—	—	—	3	—	3	—	Ordinary cases of conjunctivitis not noted. Numerous cases in the summer months, caused by water getting into the ears when swimming.
Otitis,	Numerous Cases.					—	—	—	

DISEASES.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	TOTAL.	DIED.	REMARKS.
IV.—DISEASES OF THE CIRCULATORY SYSTEM.									
Organic Disease of the Heart, . .	—	—	1	1	—	—	2	—	One case valvular disease, the other Hypertrophy.
V. & VI.—DISEASES OF THE ABSORBENT SYSTEM.									
Bubo, (Sympathetic),	—	1	—	—	—	—	1	—	
Hydrocele,	—	—	—	—	—	1	1	—	
VII.—DISEASES OF THE RESPIRATORY SYSTEM.									
Bronchitis,	—	1	—	—	—	—	1	—	
Asthma,	—	—	—	—	1	—	1	—	
VIII.—DISEASES OF THE DIGESTIVE SYSTEM.									
Boils,	Numerous Cases in June and July.								
Heat Malaise,	Numerous Cases in May, June, July & Aug.								
Dysentery,	—	—	1	2	1	—	4	—	
Diarrhoea,	Numerous Cases.								
Hæmorrhoids,	1	—	—	—	—	—	2	—	
Worms, Lumbrici,	—	—	—	4	—	1	5	—	
„ Tania,	—	—	—	—	1	1	2	—	
Hepatitis,	—	—	—	—	1	—	1	1	Arrived in a dying state.
Congestion of Liver,	1	—	2	—	—	—	3	—	
IX. & X.—DISEASES OF THE URINARY AND GENERATIVE SYSTEMS.									
Gonorrhoea,	1	2	6	6	11	2	28	—	Only one case local—rest imported.
Stricture,	—	—	2	1	—	—	3	—	
Varicocele,	—	1	—	—	—	—	1	—	
Congestion of Cervix Uteri, .	1	—	—	—	—	—	1	—	
XII. & XIII.—DISEASES OF AREOLAR TISSUE AND CUTANEOUS SYSTEM.									
Phlegmon and Abscess,	—	—	3	2	—	—	5	—	Only large ones noted.
Ulcer,	—	—	3	—	—	1	4	—	
Psoriasis,	—	—	—	—	1	—	1	—	
WOUNDS AND INJURIES.									
Wounds,	—	—	4	—	—	—	4	2	One death from gun-shot wound, the other from a fall into the hold.
Fractures,	—	—	—	1	—	—	1	—	
TOTAL,	9	11	33	26	26	10	115	5	

Analysis of the Nosological Table.—The above cases are taken (including the shipping, and reducing it so far as possible to the condition of a fixed population) from about 717 individuals.

We have this season the unusual number of 5 deaths during the six months. It will be observed that of these, 2 were from accident. One man fell into the hold of a steamer and was killed on the spot. The other was the case of a Custom House officer who died from a gun-shot wound inflicted by a native smuggler. Of the other 3 deaths, 1 (phthisis) was an old imported case, in another (hepatitis) the subject, the captain of a vessel, arrived in a dying state. For

neither of these cases is the climate in any way responsible. The remaining death was from a seizure of the nature of serous or hæmorrhagic apoplexy, on which I now offer a few remarks.

(1). *Paralysis*.—A. C., a Dane, steward of the Seamen's Hospital. Shortly before 9 P.M. on the 5th June, while conversing with a friend in one of the wards, he was observed to wander in his talk for a second or two and immediately afterwards he dropped into his friend's arms. I reached the patient at 9, and found him with hemiplegia of the left side, imperfect articulation, restless, alarmed look, diplopia, left pupil considerably dilated, left arm and leg powerless. Next day the paralysis was more complete, and on the afternoon of the 7th, patient could no longer speak and was very feeble.

8th.—No improvement. Feeding him by means of a tube introduced through the nostrils and by nutritive enemata. Afternoon, coma complete; patient slowly sinking; temperature 104° .

9th.—Coma still complete; temperature 104° .

10th.—Much the same state.

11th.—Patient died at 5.20 P.M.

The pulse immediately after the seizure was quick, but not very full; on the 7th it was full and bounding; then it became softer and less full until, on the 10th and 11th, it had become very quick and feeble. The skin was covered on these days with a cold, clammy perspiration.

Post-mortem examination, 15 hours after death.—Body well nourished. Post-mortem rigidity normal. On opening head found dura mater moderately adherent, arachnoid opaque, surface vessels and pia mater much congested. Patches of recent lymph appeared between the convolutions all over both hemispheres. Brain substance healthy on section. On slicing the corpus striatum of right side, found a vessel which was rather brittle and was contained in a wide canal. Cannot affirm positively that this was abnormal, as there was no extravasation anywhere. Sliced the brain into thin sections without finding any effusion, tumour, abscess or other abnormal appearance. The vessels at the base of the brain were, so far as I traced them, apparently sound. The ventricles contained about the usual quantity of fluid.

It will be observed that the result of this autopsy is eminently unsatisfactory and disappointing. I did not discover the cause of the initial seizure. The post-mortem appearances were, of course, enough to account for death; but I regard the effused lymph and the congestion of the vessels merely as the result of the encephalitis following the primary lesion, whatever that may have been. It is likely enough that more minute investigation might have resulted more successfully, but when one is without any assistance, when the heat is intense, and when, besides, one has a pressure of other work, pathological research is prosecuted under great difficulties.

The symptoms pointed to a lesion in the corpus striatum, thalamus opticus, or neighbouring convolutions of the right side; yet, with the exception of the doubtfully brittle vessel in the corpus striatum, nothing abnormal was discovered in these nervous centres.

An interesting point in connection with the case is, that about six months before the seizure the patient complained to me of diplopia. I treated him for this with the biniodide of

mercury, and the diplopia completely disappeared in about 3 weeks, and did not return until the stroke occurred.

The heart sounds were normal both before and after the attack, and I had no reason to think that the patient had disease of the valves. There was no history of syphilis. Patient suffered several times from headache in the week preceding the attack, but this was all the warning it gave.

(2). *Otitis*.—Inflammation of the lining membrane of the bony canal of the ear is very common during the hot months among the floating population. It usually follows swimming, and I presume is caused by water lodging within the meatus. The pain is often so intense that no relief is obtained even from large doses of morphia and chloral hydrate. The disease sometimes terminates in abscess within the meatus, and when the abscess bursts the patient is at once relieved. In other cases, a thin muco-purulent discharge keeps up for a long time.

On examining the meatus nothing is seen in the majority of cases except a reddened and swollen appearance of the lining membrane, narrowing the canal and causing the sides to approach each other. I find the best treatment to be 2 or 3 leeches applied behind the ear, painting the latter part with the P.B. tincture of aconite undiluted, and syringing the ear with a warm, weak solution of carbolic acid in glycerine. The affection though often very obstinate, is purely local, produced by a specific cause, and in no way connected with the rheumatic diathesis, as is said to be the case at home.

(3). *Locomotor Ataxy*.—This is a well marked case of the *ataxie locomotrice progressive* of DUCHENNE. It is of about 18 months' standing, and has been under treatment in hospital for over 7 months. Thirteen months before admission, patient's partner noticed his "head giving way," and six months before admission his legs failed him. He was confined to bed two months before admission.

Patient cannot walk without the aid of crutches. His movements in walking are very characteristic of the disease. He lifts the feet much higher than is necessary and lets them down in a clumsy way with a thump, the extremities of the toes first touching the floor. In making the step the foot describes the arc of a circle, the toes being pointed downwards and inwards, and the soles outwards and forwards. There is anæsthesia and much muscular atrophy of both legs. When first seen I found the patient in a very filthy condition, and passing his water in bed. After two or three severe ratings on the impropriety of this habit he was got to retain the urine until notice was given, and this happy amendment has continued till the present time. His mental faculties are much impaired, especially his memory.

As is usual in these cases, treatment has not done much towards re-establishing muscular co-ordination in the legs, but the man's ideas are now much clearer, and his memory in particular is improved.

(4). *Heat Malaise*.—I use this term to denote the ordinary effects of heat on the nervous system, and through it on the digestive organs. In this sense it is a protean malady, and I can only touch on a few of its usual phenomena as we meet them in the hot season.

Perhaps the most common subjective symptom is *giddiness*. This varies much both in degree and duration, and one has to be careful in forming an opinion of its value, for the sensation is sometimes so intense and persistent as to suggest organic disease of the brain. In the great

majority of cases, however, it disappears under treatment, or on the approach of cool weather. I had several instances this summer of men coming to me staggering and wild looking, and obliged to catch at some object to prevent falling. There is little doubt that when the effects of heat proceed to this extent the partition wall between the case and heat-stroke is very thin indeed.

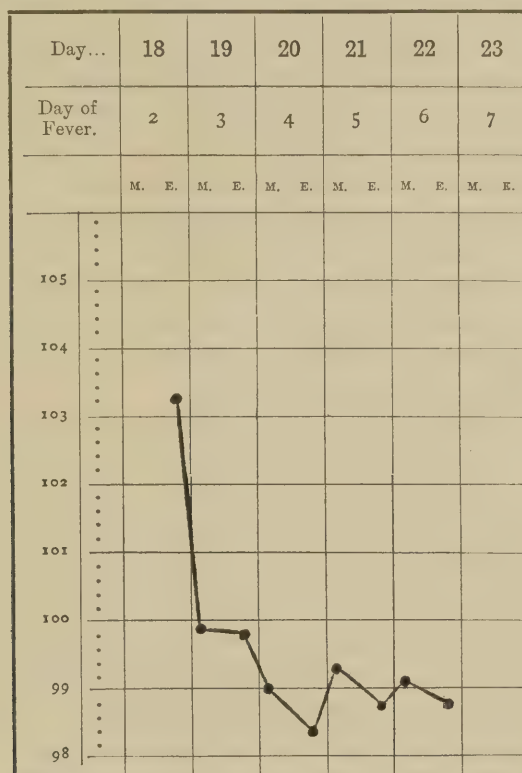
In one instance, a seaman, consciousness was actually lost for a few minutes. This case can be considered in no other way than as an abortive one of heat-stroke, and I feel sure it would have passed into the latter had prompt measures of treatment not been taken at the beginning. The man was copiously drenched with water whilst ice was being procured. Presently he fell into a deep sleep. On waking next morning his ideas were clear, and there was no paralysis of any kind, but he had a severe headache, and was weak and shaky. The latter symptoms evidenced a considerable impression on the nervous centres. He was quite well in about a week. This giddiness, experienced occasionally by most people during the hot season, is a curious sensation and impossible to describe accurately. The nearest indication I can give of it as a subjective symptom is a feeling as if the train of ideas were interrupted, and as if one were absent from oneself (so to speak) for a second. The same thing is noticed in persons who suffer from the various forms of dyspepsia, and the pathological condition in both cases is probably the same, viz., anæmia of the brain produced in the former case by exhaustion from heat and in the latter by imperfect assimilation. The giddiness is usually associated with other symptoms, such as languor and disinclination to exertion, want of appetite, headache, fever, and often with vomiting and diarrhœa. It is satisfactory to note that all these symptoms disappear on the approach of cool weather.

The above cases generally occur afloat, and are caused by exposure, assisted by the insaniary conditions with which, notwithstanding late improvements, sailors are still surrounded. Ships' cooks are particularly the subject of heat malaise, and it is no wonder, considering that they have to endure the heat of the galley in addition to that of the atmosphere. I remember some years ago having had the cooks of five vessels laid up at the same time from this cause. To the credit of the shipmasters visiting this port, I gladly mention that they do not expose their men intentionally, and with very few exceptions I have found them ready to listen to and act upon any advice of mine having reference to the health and comfort of their crews.

It is very rare now to see men aloft in the heat of the day; but there is one kind of duty, which though not so obviously dangerous, is sufficiently so in reality—I mean painting the ship's outside, except in the very early morning and in the evening. The radiation from wooden or iron vessels, especially if they are painted black, is so great that I have many instances, every season, of men injuriously affected by this kind of duty. In one case last summer, out of a ship's company of thirteen men, eight were laid up at one time by heat malaise from this cause. The symptoms were much the same in all, viz., headache, flushing of the face, considerable fever, languor, pain in the back and limbs, loss of appetite and vomiting. I pointed out the cause of the illness to the captain; he immediately stopped the work and the sickness ceased. It is likely enough that the fumes from the paint assist the heat in causing these symptoms, but this I cannot affirm positively. I recollect one instance that occurred here some years ago in the hot season, of a ship's steward who, after sleeping for one night only in a recently painted cabin, found himself in the morning with dropped wrist. This would surely be a rare event in a cold climate, considering the shortness of the exposure.

In common with other practitioners who have seen much of disease in hot climates, I occasionally come across cases that are clearly traceable to exposure to the sun, and that have no connection, so far as can be made out, with what is called "malaria." I notice briefly one of the most acute instances of this kind that occurred in July. I am unable to say whether, if allowed to develope, these cases would present the ordinary characters of remittent or intermittent, for of course one's attention is directed to curing the patient, rather than to the studying of his case. Up to the present time I have found quinine, cold to the head and aperients sufficient.

Capt. —, Master of a German vessel, admitted to Foochow Seamen's Hospital on the afternoon of the 18th July. Had exposed himself to the sun the day before, having a pressure of work to get the ship ready for sea. On the 17th he complained of intense headache and rigors, and vomited once. The cold stage continued for about 2 hours and was succeeded by burning skin and finally by perspiration, when he got relief for the time. I add the temperature chart:—



It will be seen that on admission the temperature was 103.2° , but that it fell on the following days until it became normal on the afternoon of the 22nd. Patient was fully under the influence of quinine by the afternoon of the 19th, as indicated by burring in the ears and deafness, while the temperature was only 99.8° . There is little doubt that the quinine arrested the progress of this case.

This instance is an almost complete analogue to one of ordinary ague, but in most cases of fever from exposure to the sun the stages are not so well defined as in this one. The period of

hot, dry skin generally extends over the greatest portion of the attack, the cold stage being of much shorter duration. In some instances the latter stage is only represented by a few short rigors, described by the patient as a feeling of "cold creeping up the back."

As might be expected, the effects of heat are not so marked among the residents as among the floating population. The former have usually well ventilated houses, and appliances for reducing the temperature; moreover, they do not require to expose themselves to the same extent. They suffer mostly from languor, loss of appetite and general lowered tone of system. The children get pale and fretful and often have diarrhoea.

I would again urge every one who can, especially ladies and children, to go to the hills or seaside for 5 weeks or 2 months in July and August, for when these months are tided over the great heat is past.

It is gratifying to note, since I referred in the Report of last year to the desirability of Kushan as a sanatorium for this port, that new rooms are being built for next season, and the nuisances indicated removed. The new buildings, I understand, will add one or two suites of rooms to the quarters already available for foreigners. This, though something to be thankful for, is by no means sufficient for the wants of the community. If the accommodation at the monastery were three times what it is at present, I have no doubt that all the rooms would be taken up during the hot months; but unless a special demand for quarters be made by the residents, it is not to be expected that the priests will invest money to any great extent in putting up new buildings. What good has been done already in this direction has been simply because they find that hiring out rooms to foreigners adds to the funds of the establishment. These rooms are easily and quickly built, and if now, during the cold season, some combined action be taken by the community of this port, there is nothing to prevent Kushan from becoming a pleasant and healthful resort next summer.

I am indebted to a lady for temperature observations taken at the monastery during part of July and August last with instruments supplied by the Meteorological Society. The record, which is reproduced on the opposite page, is the only accurate one, so far as I know, that has yet been made at this place. For the sake of comparison I have added the maxima, minima, and means of the Anchorage for the same period, and have further condensed the results into the smaller table, which exhibits a difference of $9\frac{1}{2}$ degrees in the day temperature, nearly 5 degrees in the night temperature, and over 7 degrees in the mean temperature of the two places for the period. The observations last year gave a difference of nearly 7 degrees between Kushan and the Anchorage. These results make the desirability of Kushan as a summer residence sufficiently obvious as far as temperature is concerned. I have not thought it necessary to go into the rather elaborate calculations required to find the evaporation and humidity; a glance at the indications of the dry and wet bulbs in the columns, shows a fair evaporation and a low degree of humidity, especially at the afternoon readings. If, moreover, we merely appeal to personal experience, there is only one opinion as to the comfort and benefit of a residence at Kushan during the hottest months.

In conclusion, let me hope that this subject will receive the attention it deserves on the part of the Foochow community before next summer. Clean and comfortable quarters are all that is wanted.

TEMPERATURE OBSERVATIONS in the Shade, taken at the Monastery of Kushan from the 9th July to the 25th August 1875, and compared with those taken at Pagoda Anchorage.

DATE.	KUSHAN.							ANCHORAGE.		
	9.30 A.M.	9.30 A.M.	9.30 A.M.	9.30 A.M.		3.30 P.M.	3.30 P.M.	9.30 A.M.	9.30 A.M.	
	Dry bulb.	Wet bulb.	Max.	Min.	Mean.	Dry bulb.	Wet bulb.	Max.	Min.	Mean.
July 9,.....	80	75	...	78.5	...	82	76	87.1	84	85.5
" 10,.....	79	74	84	77	80.5	85	79	90.8	87.8	89.3
" 11,.....	77	74	83	75	79	82	78	90	87	88.5
" 12,.....	79	75	82	76	79	80	76	92	85.2	88.7
" 13,.....	79	75	82	76	79	81	77	93	85	89
" 14,.....	77	75	83	75	79	79	77.2	95	86.3	90.6
" 15,.....	79	75	80	76	78	83	76	95.1	78	86.5
" 16,.....	79	75	83	75	79	84	77	85	83	84
" 17,.....	74	72	79	74	76.5	75.5	73	84.2	79.8	82
" 18,.....	76.5	75	76.5	74	75.2	77	75	89	85	87
" 19,.....	77	75	78	75	76.5	80	76	97	87	92
" 20,.....	77	73	79	74	76.5	83	76	84.2	79.8	82
" 21,.....	78	73	81	74	77.5	85	76	97	87	92
" 22,.....	80	76.5	85	77	81	83.6	77.5	97	87	92
" 23,.....	76	73.5	84	75	79.5	76	74	94.9	82.2	88.5
" 24,.....	74.2	73	78	73	75.5	77	74	86.9	81.8	84.3
" 25,.....	76.8	73.5	78	73.5	75.7	81.5	76	84	79.5	81.7
" 26,.....	79.5	76	82	76	79	85	80	94	80	87
" 27,.....	80	77	85	77	81.2	85.5	80.2	94.8	80	87.4
" 28,.....	81.5	76.5	85.5	77.2	81.3	86.2	80.4	93	79	86
" 29,.....	79	73	86	77	81.5	85.5	79	94.8	79	86.9
" 30,.....	78	71	86	73	79.5	85.2	76	92	76	84
" 31,.....	80	75	85.2	77	81.1	85.8	79	96	81	88.5
August 1,.....	80.5	77.4	86	77	81.9	87	80	92.3	80	86.1
" 2,.....	78	75.8	87.2	76.6	81.9	95.2	79	87.1
" 3,.....	78	73.5	83	73.5	78.2	83	74	94	77	85.5
" 4,.....	77.2	72.8	83	73.5	78.2	82.5	74.8	93.2	78	86
" 5,.....	78	73	82.4	74.5	78.4	84	76	95.5	80	87.7
" 6,.....	78	73.2	83.5	74.5	79	83	73.8	95.1	78.5	86.8
" 7,.....	78	71.4	83	73.4	73.2	83.8	75	94.2	76.8	85.5
" 8,.....	78	73.8	84	74.5	79.2	83.8	75.6	92.8	77.2	85
" 9,.....	78.2	74.2	84.5	75.8	80.1	86	78	92	77	84.5
" 10,.....	80.5	76	86	75.8	80.9	87.5	79	94	78.3	86.1
" 11,.....	79.8	74.8	87.5	75.8	81.1	87	78	94.1	82	88
" 12,.....	80.8	74	87	76.5	81.7	87	79	95.1	79.1	87.1
" 13,.....	79.4	75.8	87	76	81.5	85	76.5	95.9	78.5	87.2
" 14,.....	80.5	73.6	85	76.5	80.7	85	76	94.4	82	88.2
" 15,.....	79	72.2	85	75.2	80.1	82.8	74.8	94.2	79	86.6
" 16,.....	77.8	72	83.8	74	78.9	81	76	93.9	78	85.9
" 17,.....	80.8	73.5	81.5	76	78.7	80	75.8	90.3	79	84.6
" 18,.....	80.6	75.8	85	77.5	81.2	79.2	75.2	93	78.6	85.8
" 19,.....	78.5	73.5	83.8	75.8	79.8	82	77	90.8	76	83.4
" 20,.....	79.5	75.8	82.8	76.5	79.6	82.2	76	92	76	84
" 21,.....	75.8	72	82.5	74.2	78.3	77.2	72.8	90.6	76	83.3
" 22,.....	76.6	73	79.8	74.2	77	82.6	75	87.9	77	82.4
" 23,.....	77	73	82.2	74	78.1	80	72	92.8	74.9	83.8
" 24,.....	73.8	69.8	79.5	71.5	75.5	78	70	91.2	72	81.6
" 25,.....	75	68.4	78.8	70.5	74.6	78.4	70.5	88.9	75	82.2

An analysis of these figures gives the following results:—

	KUSHAN.	ANCHORAGE.	DIFFERENCE.
Mean of Maxima,	82.9°	92.4°	9.5°
Mean of Minima,	75.1°	80.0°	4.9°
Mean Temperature,	79.0°	86.2°	7.2°

Seamen.—I desire again to refer (see *Customs Medical Reports* No. 2, pp. 29-33) to the complex subject of sanitation afloat, and to some legislative enactments with reference to seamen. The following remarks are based on a professional association with sailors for 12 years, and they may therefore prove of some little value. The Merchant Shipping Act of 1867 has undoubtedly done much towards ameliorating the condition of seamen, in the matters of health and comfort. In the first place, it provided lime-juice of good quality, and caused it to be properly administered. The result of the working of this clause alone has been to reduce scurvy in the British merchant navy by 80 per cent. Another good effected is the improvement in the accommodation for seamen. The provisions run as follows:—

“(1). Every place in any ship occupied by seamen or apprentices and appropriated to their use, shall have, for every such seaman or apprentice, if they sleep in hammocks, a space of not less than nine superficial feet, and if they do not sleep in hammocks, a space of not less than twelve superficial feet, measured on the deck or floor of such place.

“(2). Every such place shall either be six feet in height from deck to deck, or shall have for every seaman and apprentice, if they sleep in hammocks, a space of not less than fifty-four cubic feet, and if they do not sleep in hammocks, a space of not less than seventy-two cubic feet.

“(3). Every such place shall be kept free from stores or goods of any kind, not being the personal property of the crew in use during the voyage.

“(4). Every such place shall be properly caulked, and in all other respects securely and properly constructed and well ventilated.”

I have observed of late years a great improvement in forecastles and deckhouses. The dens of places that men used to be put into in former years are never seen now, except, I am sorry to say, occasionally in the case of colonial vessels. The tea steamers that trade here have usually fine, lofty, well-ventilated forecastles, to which no exception can be taken, except that they are nearly always very dirty. Can seamen not be got to keep their persons and their places clean? When we consider that cutaneous exhalation is the great physiological apparatus provided for reducing the bodily heat, the advantage of free pores is obvious enough. I do not know that people can be made clean by Act of Parliament, but surely something might be done in this direction on the principle that a dirty man is dangerous to his neighbours as well as to himself. At all events, they manage to enforce cleanliness in the navy; one does not see dirty skins and dirty quarters there.

The influence for good or evil of hygienic surroundings is a matter of everyday experience, and if some such system as obtains in the navy were introduced into our mercantile marine I do not think it is visionary to expect that increased self-respect would promote a change for the better in the appearance, disposition, and pursuits of our sailors—an approach to the smartness, cheerfulness and buoyancy that are the acknowledged characteristics of our men-of-war's men in all parts of the world. If this is not done, I am satisfied that the improvements which may be made from time to time in the accommodation provided for crews will, to a great extent, be shorn of their usefulness. I never lose an opportunity of urging on seamen the duty of cleanliness, but of course my exertions are only “as a drop in the bucket,” in the absence of systematic regulations.

In view of all the good effected by this and subsequent enactments, it is to be regretted that several of the clauses are not carried out actively, while others are a mere dead

letter. An instance of the first is the clause relating to the providing of medical stores and medicines of good quality. While the lime juice is regularly inspected, I know, from enquiries made of many ship-masters, that the Board of Trade never concerns itself about the medical stores and medicines, and that it is quite optional for the master or owners to renew or not their stores and medicines after a long voyage. Under these circumstances one never can tell whether the medicines in the ship's chest are of good quality or not. Surely the seaman ought to be provided with good drugs as well as with good lime juice.

An example of a clause that is altogether inoperative is that concerning the medical inspection of seamen. The mistake was to make this a *permissive* instead of a compulsory clause. The result is, that it is never acted upon. When one asks captains who have suffered from having sick men on their hands during a long voyage, "Why did you not have your men inspected before leaving London?" the answer is usually unsatisfactory—"Well, perhaps it might have been better," or something to that effect. The fact is, that ship-masters have always a press of work before leaving port, and unless the inspection clause be made obligatory instead of permissive, ships will still continue to be manned (or rather *not* manned) by "unseaworthy sailors."

It seems likely that a new Merchant Shipping Act will be framed before long. In it there will probably be embodied two matters that I advocated in these Reports four years ago, viz., a revised scale of provisions to do away with the necessity for lime juice, and the compulsory medical inspection of seamen.

(5). *Intestinal Catarrh, Diarrhœa, Dysentery*.—Next in frequency to the various forms of heat malaise described above, comes intestinal catarrh. Indeed, I might have included the latter under the general heading, but I have kept it separate to mark a point or two.

When speaking of diarrhœa I use the term in MOREHEAD'S sense. He says, "The term 'diarrhœa' occupies a prominent place in the hospital returns of tropical climates, because it is 'often used in its etymological, not its pathological sense. It is only correctly applied to increased 'alvine discharges, dependent on active or passive congestion of some part of the mucous lining of 'the intestinal canal. The increased evacuations consequent on inflammation of the same tissue, 'either in its early stages or after it has led to structural change, are inaccurately designated 'diarrhœa. Yet this name is often given to chronic dysentery, muco-enteritis, and gastro-enteritis; 'and the returns of disease are in consequence rendered incorrect and untrustworthy. The diagnosis 'is not difficult; it rests on a careful consideration of the history of the case and of all the attendant 'symptoms.'" (*Disease in India*, 2nd Edition, pp. 316-317.)

There is no doubt that many of the obstinate cases one meets with here that go by the name of chronic diarrhœa, are in reality chronic dysentery, with considerable organic changes in the large intestine. Summer diarrhœa, though almost universal among the shipping population during the hot months, is not a fatal disease, and I have no trouble in the great majority of cases in getting the patients well. Many of the cases are imported, but the disease is of local origin as well. It does not seem to make much difference in frequency whether the vessel arrives from Hongkong or Shanghai; I should say more cases come from Shanghai.

As a typical instance of the nature and course of the disease, take the case of a tea steamer with say 45 of a ship's company, all told. Of this number, on arrival here in June, July or August, probably 8 men come aft complaining of diarrhœa. The general symptoms are much the same in all—crampy pains in abdomen, frequent motions, and debility. The stools, at first feculent in character, afterwards become light greenish, watery and colourless. This want of colour in the dejections after frequent purging is not, as MOREHEAD justly remarks, to be taken as an indication of hepatic disorder. On examining the liver we almost always find it of normal size, and in the few cases where the bulk of the viscus is increased, the enlargement can be traced to other causes than the disease.

NIEMEYER, with his usual ingenuity, has shown, since MOREHEAD wrote, what I believe to be the true pathological state in these cases. He says, speaking of acute intestinal catarrh, "At first the evacuations consist of thin, fecal matters (diarrhœa stercoralis). If the serous transudation and the accelerated peristaltic movement continue after all the fæces present in the bowels have been evacuated, the dejections gradually lose the peculiar fæcal odour, and consist of salty transudations mixed with epithelial masses (cylindrical epithelium), young cells, and more or less undigested and slightly changed ingesta (diarrhœa serosa). The colour of fluid stools is usually some shade of green; this does not depend on an abnormal quantity of bile being poured into the intestine, but on the bile being evacuated with the fluid and the intestinal secretions before it has undergone the normal changes. The more copious the transudations, the paler they become, because the bile, mixed with them, is insufficient to colour the whole."—(*Lehrbuch der speciellen Pathologie und Therapie*, Bd. i., p. 609).

To continue the clinical account:—If the case has been of some standing, say a week, the motions are frequent, scanty and watery or clay-coloured, and contain little feculent matter. In these cases it may happen that there are present mucus and streaks of blood; but in my experience, when the patients are seen at the beginning and treated in the way to be mentioned, it is rare to find summer diarrhœa passing into dysentery. The disease is arrested in the stage of simple hyperæmia of the mucous membrane, and inflammation and organic change are thus prevented.

The treatment I have used for many years at this port is simple enough, and quite satisfactory in result. On seeing the patients in the morning, I give a drachm each of castor oil and tincture of rhubarb, and direct two pills containing one grain each of opium to be taken during the day, the first about 4 o'clock in the afternoon and the other at bed-time. Next day (supposing 8 men in the vessel to have been treated thus), 5 of them will probably be quite well, the remaining 3 still loose, more or less. The latter now get 3 opium pills, to be taken during the day at intervals of 4 hours. On the 3rd day, they are generally well also. Should the diarrhœa still go on, I give an astringent mixture. The best in my experience is one containing in each dose, 1 drachm tincture of catechu, 20 grs. compound chalk powder, and 15 minims of solution of muriate of morphia. This mixture seldom fails to arrest summer diarrhœa. The tincture of rhubarb is particularly serviceable from its well known after-astringent action. Rest is an essential element in the treatment, and I always put the men off duty.

It is curious to note that CELSUS, when describing a similar affection, recommends rest. After remarking that he thinks a little purging to be a good thing, he goes on:—"Verum spatium

“periculosum est; interdum enim tormina ac febriculas excitat, viresque consumit. Primo die “quiescere satis est; neque impetum ventris prohibere. Si per se desiit, balneo uti, paulum cibi “capere; si mansit, abstinere non solum a cibo, sed etiam a potione.” (Lib. iv).

I try to regulate the diet as much as possible, but this is a difficult matter on board ship. What is the cause of the great prevalence of diarrhœa during the summer months? It certainly is *not* the water. Ships carry water from Hongkong, from Shanghai and from home, and I observe no difference in the number of cases. I stated in an early number of these Reports that I had not noticed fewer cases of diarrhœa in vessels using condensed water only. Gunboats use condensed water alone, and they have much diarrhœa. I learned lately that the U. S. Gunboat *Ashuelot* had an unusual number of cases of intestinal catarrh at Ningpo last summer, although condensed water only was used. The residents at this Anchorage have drunk the water of the river for years without injury.

I think there is a growing opinion in the profession (especially entertained by those who have had much experience in tropical and sub-tropical countries) that water containing organic matter has been too heavily blamed as the cause of disease. This subject is too extensive to be treated properly in these notes, and at present I desire merely to state my conviction. MOREHEAD remarks:—“Unsuitable food, impure water included, may excite dysentery; but it is not “a common cause.” (*Disease in India*, p. 275). In the last journals of David LIVINGSTONE I observe only two instances, and these in the same country, where he traced disease to the water used. Speaking of the Manyema country, he says:—“5th, 6th and 7th January, 1870; “Wetings with rain and grass overhanging our paths, with bad water, brought on choleraic “symptoms; and opium from MOHAMED had no effect in stopping it; he too had rheumatism. On “suspecting the water as the cause, I had all I used boiled, and this was effectual; but I was “greatly reduced in flesh, and so were many of our party.” Again, he says:—“15 January; “Choleraic purging again came on till all the water used was boiled, but I was laid up by sheer “weakness near the hill Chanser.”

On the other hand, it may be said that the system of the great explorer was very low at this time, owing to old dysentery and an attack of pneumonia passed through shortly before. Besides, the fluid referred to must indeed have been a vile mixture, for he states further on: “This (the insalubrity of the Manyema country) may be owing to bad water, of which there “is no scarcity, but it is so impregnated with dead vegetable matter as to have the colour of tea.” Considering the extent of country embraced in these journals, the fact that only twice is disease traced to the water used seems, I think, significant.

The true explanation of the prevalence of diarrhœa afloat during the hot months is, I think, as follows:—Most of the cases occur during the night, they are particularly frequent between 2 A.M. and daylight. We know this is the coldest part of the night. The men sleep on deck under awnings (it is unreasonable to ask sailors to sleep in the fore-castle during the hot months, for to sleep under these circumstances is simply impossible); their blankets are unconsciously kicked off during sleep, and the abdomen and chest thus exposed to the cool land breeze that blows down the river before sunrise. I recommend all to wear, in summer, broad flannel rollers, commonly called “cholera belts.” These cannot be kicked off during sleep, and they are very serviceable in preventing diarrhœa.

With regard to dysentery, I find it to be much less frequent within the last few years. The change from sailing vessels to steamers has had, I dare say, a good deal to do with this, by shortening the stay of vessels at foreign ports; but as the cases of dysentery here are mostly imported, I cannot help thinking that the improvement is also in some measure due to better sanitary conditions on board ship, and at Hongkong and Shanghai.

I tried, this summer, small doses (3 to 6 grs.) of ipecacuanha, as recommended by MOREHEAD and others, instead of the large doses (40 grs.) advocated by me in an early number of these Reports. The cases were not numerous enough to enable me to speak positively as to the superiority of one or other of these methods. In one case (chronic, contracted in India) 40 gr. doses, though they were retained, did not seem to have much effect on the disease; but when 3 grs., combined with 1 gr. of opium, were given every 4 hours, the motions became much less frequent and better in character. This man left the port about 10 days afterwards, and I cannot tell whether the improvement was permanent. In another case, the small doses did not check the disease to any extent, and after giving the treatment a fair trial of a few days I did not think it justifiable to continue it longer. On administering 40 grs. of ipecacuanha the disease was immediately arrested, and only one dose more and some pills of Dover's powder were required. I know that this patient was cured permanently, for the ship was over three months in port. In a third case, a mixture of the two methods did well, *i.e.*, first the large doses, then the small. This was the most acute case of dysentery I have seen for the last two years; the patient, a tidewaiter, got quite well and has had no return of the disease. On the whole, I still prefer the large doses, but one need not confine oneself to either of the methods to the exclusion of the other.

(6). *Ulcer*.—I may mention a simple and effective mode of treating ulcers that I have used here for a long time. A piece of the leaden lining of a tea box is beaten out smooth and laid upon the ulcer, taking care that the lead goes well beyond any unhealthy skin, and a bandage is applied to keep the tea lead *in situ*. When the discharge is profuse, two or three folds of lint are applied over the lead to absorb the pus, but the lead is always kept next the wound. The dressings are changed once or twice a day according to the amount of the discharge. This method of treating ulcers was, I believe, introduced by the late Mr. SYME of Edinburgh, many years ago. I find it very serviceable in old chronic ulcers, that are usually found so troublesome when treated by other means. As to the *modus operandi*, I cannot say whether the good is effected by the equable pressure afforded by the lead, or whether it is that a chemical compound is formed which is soothing to the sore; at all events, there is no doubt about the result.

(7). *Wounds and Injuries*.—In making a conservative operation on a hand that had been smashed in a fall-block, I used ether for the first time instead of chloroform. The result was satisfactory; anæsthesia was complete and lasting, and no bad symptom followed. The ether used (marked S. G. 735) had been in the surgery for some time, and it took five minutes to get the man completely under its influence. Another time I mean to use absolute ether, poured on a fine, hollow sponge covered with a towel.

The fatal gun-shot wound in the table refers to a Custom House officer who was murdered by a native smuggler. The deceased received his death wound whilst leaning over the rail

of the steamer where he was on duty. The chest was perforated all over with what appeared to be iron pellets of different sizes (as is always the case with Chinese shot). The lungs were penetrated, as indicated by the oozing of blood-stained froth from the wounds, and emphysema. Two of the pellets probably entered the muscular substance of the heart. Death must have been almost instantaneous. From the relative positions of the parties, the distance could not have been more than from 9 to 12 feet. Judging from the large spread of the shot, the weapon used was probably of native manufacture; an English fowling-piece at that distance would have carried the charge almost in a ball.

It is gratifying to learn that the murderer of Mr. BLACKLOCK was executed at Foochow a few days ago.

H.—Dr. A. G. REID's Report on the Health of Hankow for the Year ended
30th September 1875.

THE general health of the community during the past year was characterised by the prevalence of malaroid disorders throughout the summer and autumn months. This can be easily explained by the usually accepted theory, that malaria is a poison generated by the action of heat and moisture on decomposing organic matter in the soil. From the heavy rain-fall in June and the overflow of the river in July the unraised lots and back portion of the Concession were either wholly or partially inundated during a considerable part of the hot season, and the atmosphere in their neighbourhood loaded with the unpleasant odours arising from decomposing vegetation. The fever which prevailed was of a continued type, with a morning temperature of 100° to 101° , and evening rise of 2° to 3° . It was accompanied with nervous prostration, rapid emaciation and sometimes with hepatic, gastric or cerebral symptoms. It rarely set in with marked rigors, most frequently there was only a sensation of chilliness during the first day of the attack. It seldom terminated under two to three weeks, and during the last week of the fever there were intense night sweats in several of the cases, which added to the general debility of the patients. Full doses of quinine (20 to 30 grains) were administered night and morning, but they did not appear to exercise a specific effect on the disease while the sufferer remained in the malarious neighbourhood. They undoubtedly reduced the temperature and maintained it at a lower rate, just as they do in typhoid fever when administered in the way taught by LIEBERMEISTER; but they did not seem to act like an antidote to the malarious poison, for the febrile symptoms went on for weeks after complete cinchonism had been produced, and without there being any evident internal complication to explain their persistence.

Two examples of acute hepatitis were readily relieved by full doses of ipecacuanha, guarded by opium as in dysentery. In one of the patients the sufferings were intensely severe, accompanied by high fever (104°); semi-recumbent attitude in bed and impossibility of moving without assistance. The hepatic dulness measured 6 inches in line of nipple; there was a trace of yellowness in conjunctivæ, tongue loaded with dark brown fur, and tendency to diarrhœa three or four times a day. Half a drachm of ipecacuanha was administered night and morning, and after the second dose the sufferings were greatly relieved, so that the patient could lie down in bed. The remedy was continued over three days and then stopped because the hepatic pain and tenderness had disappeared, the temperature fallen to 98.4° A.M. and 99.4° P.M., pulse 84, and diarrhœa limited to one loose motion daily. As hepatic enlargement continued, chloride of ammonium was administered, but after it had been given for two days severe dysenteric symptoms set in, and necessitated the use of the ipecacuanha during five days before the symptoms were relieved. Suppurative hepatitis, certain forms of dysentery and malaroid fever are endemic in some places, and they have been the chief causes of serious illness among foreigners resident here. It is interesting to note that the first two diseases seem to be controlled by the same remedy, and they may probably arise from closely allied miasms which in certain conditions of the patient attack the liver, or glandular structures of the large intestine, or both.

Two instances of hepatic abscess came under observation. In one, the patient was attacked with fever in July, but could not get rid of it, and left in August to try the effect of a voyage to Japan. Three days before leaving complaint was made of dull pain in the liver, but the journey was not delayed, as the climatic conditions here were very unfavourable and depressing. While in Japan there were serious liver symptoms and abscess was feared. On returning in the beginning of October the patient was extremely feeble and emaciated, suffering from hectic fever, which was attended with marked rigors during two days. There was also a slight feeling of pain in the right side, brought out more distinctly by pressure over 7th and 8th ribs in front; but no intercostal distension or depression of lower border of liver. From considering the general symptoms and history of the attack, abscess was strongly suspected, and it was proposed, according to the principle laid down by Prof. MACLEAN, to explore with the aspirator. The patient, however, suffering little pain, begged to have the operation delayed for a time. In the first week of November, he was attacked with hæmoptysis, accompanied with inflammation of lower lobe of right lung, and shortly afterwards with fœtor of breath and expectoration of muco-purulent matter. The discharge and the condensation disappeared in the course of a month, and the fever and night sweats likewise gradually diminished, leaving the patient convalescent, but very weak and emaciated. In the other instance, chronic dysentery had been going on for some time, when hepatic pain, accompanied by fever, occurred. The symptoms were carefully watched for a time, and hepatic abscess diagnosed. The aspirator was used, but failed to strike the matter. Shortly after this, the patient left for home, and while on his voyage thither, the abscess ruptured into the lung and recovery followed after a tedious convalescence. In both these cases the matter formed deep in the substance of the liver and pointed towards the diaphragm. There were no local signs to guide one to the exact position of the lesion in either case; but in the first, the approach towards the lung was indicated by great dyspnœa in going up stairs during several days previous to the hæmoptysis and pneumonia. The diagnosis of either case rested chiefly on the history of liver troubles, followed by a hectic type of fever, great debility and emaciation, which resisted treatment and were associated with slight pain in the hepatic region. Fortunately both patients recovered, through nature's efforts in successfully forming a passage for the pus by the bronchi. The risk to life, however, might have been greatly reduced if the necessity for discharging the matter by this dangerous channel had been superseded by its timely withdrawal by the aspirator.

During the first week of August both days and nights were extremely sultry, oppressive and still. On the 6th, at 4 P.M., the maximum thermometer indicated 96°; wet bulb max., 85°; black bulb, in sun, 152°; min. on grass, 95°; ozone over twenty-four hours, 3, by NEGRETTI'S scale; barometer, 29.62 inches. During that day three cases of sunstroke occurred on board the gunboat in port, and one terminated fatally by noon, with comatose symptoms of brief duration. In another instance, recurrent convulsive attacks took place every two or three minutes. The spasms were severe, and four men were required to prevent the patient from injuring himself against the deck of the ship. They were accompanied by burning heat of skin, congested conjunctivæ and hysterical-like outbursts of laughter or stupor in the intervals. The ship's pump had to be freely played over the body for an hour before the convulsions ceased, and the treatment was found most effectual in diminishing their severity, when the stream was directed

for a short time against the occiput and upper cervical region. The other case was also of the cerebro-spinal variety of MOREHEAD'S classification, and it subsided readily under the douche. The water supplied to the pump was tepid, as it was drawn from the river, the temperature of which was then over 80°. Orders were issued that any of the men who ceased to perspire or were troubled with frequent micturition should report themselves at once for treatment. In the course of the next day seven men had to be landed on account of feverish symptoms and these were carefully treated until the skin resumed its functions. No more serious cases occurred.

CASES OF LEPROSY TREATED WITH GURJUN OIL.

———, æt. 51; weight, 175 lbs.; a labourer from an aguish district on the bank of the Han river, admitted on April 22nd, suffering from elephantiasis of the left leg. Disease began three years ago with swelling in groin, red lines along inner surface of thigh, and this was shortly followed by enlargement of the leg and foot. Two years ago an ulcer formed over the anterior third of the dorsum of foot, and has not healed since. The skin over front of ankle is in deep folds and covered with numerous tubercles. There is a large ulcer extending right across the dorsum of foot from the middle third to the roots of the toes, the edges are callous and it discharges a thin, foetid matter. The circumference of right and left legs were as follows:—

	Right.	Left.
Middle of thigh,	18½ inches.	19½ inches.
Middle of leg,	15 "	17½ "
Lower third of leg,	10 "	14½ "
Around middle of foot, ...	10 "	14 "

Treatment consisted in frictions with gurjun oil ointment, and half ounce doses of the emulsion thrice daily. The patient continued this till June 1st, when he found it necessary to return to his home. The state of the limb was then as follows:—

Middle of left thigh,	18½ inches.
Middle of leg,	16 "
Lower third,	13 "
Around foot,	12½ "

The tuberculous appearance and the hardness were greatly diminished, the ulcer was completely healed, and the patient had gained four pounds in weight during his residence in hospital.

———, æt. 28; admitted April 13th; height, 5 ft. 6 in., weight 124 lbs.; a labourer resident in an aguish district. No family history of leprosy; no other lepers at present in his village. Father and mother were related, and each had lost brothers and sisters from phthisis; had five brothers, two of whom died in early youth, the others are in good health. He himself is married and has lived with his wife up to present date. She is in good health and has borne three children. He lives entirely on rice and vegetables, taking about seven bowls of the former and two of the latter daily. Disease began seven years ago with a numb patch over the head of right tibia. Its dimensions gradually increased, but he suffered little inconvenience for three years. At that date the disorder was greatly aggravated, and numbness attacked the left lower

and both upper extremities; the thenar and hypothenar eminences wasted, and the little and ring fingers became flexed. Virile power became impaired two years ago and has been completely lost for one year. The hair fell from eye-brows and pubis about latter date and at the same time a numb patch appeared on left temporal region, and circular ulcer over head of middle metatarsal bone. The patient stated that his general health was good and appetite unimpaired. The internal organs were healthy except the heart, over which there was frémissment, visible pulsation under the nipple and a mitral murmur. When the ordinary magneto-electric current was passed through the upper portions of the forearms it produced muscular movement but not the slightest pain was complained of. Below the middle of legs and forearms there was neither pain nor movement during the passage of the current. The patient remained in hospital to June 23rd, and was subjected to frictions twice daily with Gurjun ointment, and took the emulsion internally twice daily in doses containing from 2 to 4 drachms of the oil. It unfortunately had to be intermitted on three occasions for several days, as it led to considerable pain and diarrhoea. When the patient left he had gained three and a half pounds in weight, the ulcer had entirely healed, and although he stated that the intensity of the numbness had diminished, the electro sensibility had not improved.

———, æt. 25; height, 5 feet 4 in; weight, 108 lbs.; admitted May 1st; resides in aguish district and engaged in the cultivation of rice. His father was a leper, but he himself is the only one in his village afflicted with the disease. His wife is in good health and has borne two children. Diet consists of rice and vegetables, with fish or meat two or three times a month. Disease began three years ago with a numb patch on left leg. This gradually extended, but the other extremities remained free for about sixteen months. The disease then appeared about the same time in the hands, right leg and face, his eyebrows and hair of pubis fell, and virility, which had been diminished, was completely lost. The hair of scalp was normal. Face swollen, smooth, devoid of hair. Alæ of nose, upper lips and fold of cheek thickened; twitching about mouth. Thenar and hypothenar eminences wasted, but wasting most intense in left hand; little fingers slightly bent and numb. Does not feel scratch of a needle in little fingers or below middle of legs or in left half of face. Left leg swollen and ulcer over ball of first toe, ulcer also over base of fifth right metatarsal. Electro sensibility much diminished in left forearm and in both legs. The diet of this and of the other patients was not altered from what they had been accustomed to. Treatment by Gurjun oil ointment and emulsions.

June 23rd.—Weight, 113 lbs.; ulcers healed; face much softer and less puffy. Troubled with morning erections and emissions. States that he is certain that the numbness is less intense and that he can now feel pain when the little fingers are pinched or scratched.

———, æt. 28; height, 5 feet 4 inches; weight, 115 lbs.; admitted 30th April. A baker, living almost entirely on farinaceous food. Married and has three children; wife in good health. His mother died of phthisis, and his father from a throat affection. The people of the village suffer greatly from ague, but he alone is leprous. It was difficult to obtain a fairly accurate account of the course of the disease, as the patient had very indistinct notions of time. He states that he first felt numbness on inner surface of right thigh about five years ago, and that it extended thence downwards to leg and foot. Four years ago the other extremities were attacked, and he has been impotent for two years. On admission these additional symptoms were noted:—Hair of head and

pubis normal, eyebrows scanty, twitching in muscles of left side of face, closes left eye about two-thirds, hard elevated patch over left malar bone. Movements of mouth jerking and imperfect, cannot corrugate eyebrows or nose, tongue tremulous. Both hands wasted, especially left, where thenar and hypothenar eminences have disappeared, and interosseous spaces are hollow. The scratch made by a needle is not felt in left upper extremity, right forearm, left side of face or below knee. Treatment by Gurjun oil internally and externally.

June 23rd.—Ulcer of foot healed. Node over malar bone almost gone. Feels numbness less, and says that his skin is softer and more lax. Weight, 119½ lbs.

September 28th.—Scratch of a needle felt distinctly over whole of palmar aspect of right forearm, but less so on dorsal surface. In the left upper extremity it is felt to middle of forearm and also distinctly in tips of fingers. In lower extremities sensibility can be elicited by the needle to below the middle of legs. Weight, 123 lbs.

Three of the foregoing cases show that in Gurjun oil Dr. DOUGALL has discovered a remedy highly beneficial in alleviating the skin manifestations of leprosy, for under its use, and without any alteration in the patient's customary diet, ulcers healed up, thickenings and tubercles disappeared, and there was a gain in weight and healthy looks. Improvement however in the anæsthetic symptoms was a much slower process, but it was asserted that the numbness had become less intense, and this could be further shown by the scratch of a needle being felt in parts where sensibility had formerly disappeared. A difficulty was experienced in thoroughly testing the remedy from the unwillingness of patients to remain under treatment longer than a month or two, either their families or their occupations inducing them to return home. The treatment was carried out during the summer, when in most instances it would only be practicable to employ the ointment, as the remedy acts slowly, and the patients, seeing no rapid amendment, would probably object to stripping twice daily in the winter months. A speedy or certain cure could not be anticipated, considering the serious nature of the structural alterations which have been discovered by the researches of CARTER, VIRCHOW and Norwegian physicians. These observers have found not only tubercular deposits in the interstitial connective tissue of the nerves, with alteration of the neurilemma and of the septa of the fibrillæ, but also complete atrophy of the fibres which has arisen from a chronic inflammatory process connected with the leprous disease (VIRCHOW).* How far the general improvement of the patient may have been due to the alimentary properties of the oil can only be determined by contrasting its advantages

* With respect to true anæsthetic leprosy, close enquiry shews that it depends upon a process affecting the nerves which, when it affects the skin or mucous membranes, we call "tuberculous." That is to say, anæsthetic leprosy is a tuberculous affection having for its seat of election the nerves; it is, in a word, *lepra nervorum*. Of course the growths in the nerves are not so exuberant as to give rise to tumours strictly so called. The process is often so uniformly diffused along long nerve tracts that one is rather disposed to regard it as chronically inflammatory. As a rule, the increase lies midway between true tumour and diffuse swelling. It is more or less spindle-shaped—a rounded or flattened thickening. You can often feel the enlargements very distinctly during life, for instance on the ulnar nerve at the elbow, and I may here notice that these nerve swellings may be accompanied by contemporaneous tubercles on the skin, so that a clear limit between lepra of the skin and of the nerves cannot be established.

This form has commonly a chronic course extending over many years. It mostly begins with hyperæsthesia, and passes, at first gradually, into anæsthesia, so that in many parts of the body the severest pains are still felt while in others the most complete insensibility has supervened. There is a material difference to be observed according as at one time the nerve terminations, and at another the trunks in their continuity suffer. According to DANIELSEN and BOECK's earlier experiments, which up to the present have not been confirmed, a diffuse inflammation of the spinal and cerebral membranes, especially round the nerve roots, appears to occur, which entails the most disastrous consequences.

with those of other oils in an equally prolonged and systematic manner. The external use of the Cashew nut oil was at one time supposed to be a powerful remedy in leprosy, from its having been employed in the cures reported by Dr. BEAUPERTHUY, but in the hands of other physicians it gave less favourable results. The nutritive efficacy of frictions with warm oil is acknowledged in other constitutional diseases attended with marasmus, especially in early life, and it has likewise been shown by Mr. J. SIMPSON that this benefit extends to adults employed in departments of labour where oil is frequently handled. But in addition to improving nutrition, Gurjun oil has also been found useful in various skin affections, and its beneficial effect in leprosy and elephantiasis may depend, as suggested by Dr. LAYCOCK, on a stimulant action on the absorbents, which is further aided by the frictions. The Gurjun emulsion acted as a mild laxative, producing two or three motions daily, and although it occasionally led to diarrhoea, necessitating its intermission for a few days, it gave little trouble in this respect.

The disputed question of the contagiousness of leprosy is discussed in the April number of the *Medico-Chirurgical Review* and in the *Edinburgh Medical Journal* for September. Dr. HANSEN of Bergen, who contributes the article in the former journal, has had numerous opportunities of observing its etiology, and he has recorded several cases where the family history for two generations was free from taint, and where he could assign its origin to contagion. In one instance he traced it to washing clothes soiled with leprous discharges, in another to handling lepers,

During my stay in Bergen I received from DANIELSEN himself my first nerve specimens of this kind, and in my early preparations I found that the change consisted in an enlargement, similar to skin tubercles, which originated in the interstitial connective tissue, but was frequently associated with an important alteration in the neurilemma. DANIELSEN has reproduced two preparations of this kind. Later on I was able to obtain more material, partly from an autopsy which I made at Bergen and partly through the kindness of Dr. HOFFMAN of Moldavia. And finally the late observations made by CARTER agreed in essentials so fully with those of DANIELSEN and myself, that no doubt remained regarding the general truth of the facts as stated.

On following out one of the longer nerves, such as the ulnar, the median or the peroneal, it was usually found to be the seat of enlargement, not uniform, but recurring at certain intervals, and chiefly in those situations where, from its superficial position or its connexion with bone, it was chiefly exposed to mechanical and thermal vicissitudes. Thus I found the median most seriously diseased at the point where it passes over the carpus under the annular ligament, while the ulnar usually presents its most marked increase at the elbow. The colour changes as one approaches the more condensed portions. The natural whiteness of nerve tissue passes into a decided grey, sometimes tending to brown and sometimes rather to black. At the same time, the nerve becomes firmer and occasionally actually hard (sclerosis). On cross section the inner portion appears more homogeneous than normal. Under low powers the chief conditions are clearly exhibited. The loose connective tissue which forms the outer layer of the trunk, holding together a large number of bundles, is hardly altered. At most the walls of its vessels are thickened. The neurilemma is generally affected, the change being in some cases very trivial while in others the neurilemma is replaced by a hard, callous, condensed mass. But the most important alterations lie deeper, in the septa of the nerve bundles, and in the proper interstitial substance. They often begin close under the neurilemma, where one finds a strongly refractive mass deposited, and they shortly advance thence into the larger septa which divide the nerve bundles into rows of smaller bundles.

Under a higher power it is seen that the darker mass which occupies the divisions is composed of a dense aggregation of cells, deposited not merely in the direction of the larger connective tissue septa, but also everywhere between the primitive nerve fibres, surrounding and embracing them. There thus results an extremely complicated structure in which each nerve fibre forms, as it were, an axis, in the centre of which the axis-cylinder is situated, while round it the network of lepra cells establishes itself.

Where the disease was of longer standing I found two main changes. There was in the first place a decided fatty metamorphosis arising in the lepra cells, and advancing to the formation of large granular cells, so that under even a low power these spots appear quite dark. This is obviously a degeneration, and it hardly admits of doubt that resolution and cure may thence result, and will be more or less perfect if it occurs early enough. But frequently another change occurs meanwhile, namely complete atrophy of the primitive nerve fibres, which (in accordance with CARTER's observations) I have never seen result from fatty metamorphosis. In the first case that I observed there was a degeneration of the medullary sheath into coarser myelin corpuscles which became smaller and smaller until they wasted away, the axis-cylinder disappearing at the same time.

—VIRCHOW on *Tumours*, 2nd vol., pp. 521–524.

in a third to chumming with them, &c. He refers its apparent hereditariness to contagion after birth, and its appearance among the Norwegian settlers, after a long residence in America, to a portion of them having been infected before leaving their native country, and introducing the disease while in its incubative stage. He believes that the period of incubation may be prolonged over many years, and he "cannot admit that fourteen years is a sufficiently long interval to exclude the "disease being brought from home." If the spread of leprosy were only due to a specific and contagious poison, living or chemical, developed in the bodies of the sick, it is difficult to understand why it should not have extended more widely in this neighbourhood, where the lepers are not driven from society and compelled to associate together in certain villages, but where they continue to reside with their relatives and mingle with the healthy population. A few lepers are found in the cities but not, so far as I have been able to ascertain, among families who have resided in towns over several generations. The great majority of the cases come from the wet, aguish country districts where the inhabitants are collected in small hamlets consisting of one to several hundred people who are extremely poor, subsisting on vegetables, rice, the produce of uncultivated lands, and only occasionally partaking of fish or animal food. In many of the villages one or two of the adults are leprosy, and in most instances males are the victims. According to the testimony of both sick and healthy, leprosy does not spread over various families but clings to one, and it has shown the same character in past times, so that there is a prevalent belief in the hereditary nature of the disease. Youths who show symptoms of leprosy rarely marry, but in many instances where the symptoms have not been developed till after adult years, the lepers have been married to healthy women, and although particular enquiry was made concerning their condition, they were never found to have contracted the disease. The offspring of lepers are all equally exposed to the contagion, but many of them escape, and it is not rare to meet with a leper brought by a healthy brother to the dispensary, and to find on enquiry that both have occupied the same house for twenty or more years. Occasionally it will be stated that the applicant is the first case of leprosy in the village and that he has never, to his knowledge, been exposed to contagion; but it is difficult in such instances to feel sure that the disease may not have existed among his ancestors in a mild form, appearing perhaps late in life, and remaining limited to a numb patch concerning which nothing would be said. It is remarkable to find how frequently phthisis also exists in leprosy families. In many of the cases where the uncle was stated to have been a leper, the father had died of phthisis, and both diseases were found in the descendants; the weakness and vulnerability of constitution which predisposes to the one also endangering the supervention of the other in some of the offspring. In alluding to the manner in which leprosy is transmitted, it is not meant to deny the possibility of its being contagious under certain circumstances, for how can its spread in the Sandwich Islands otherwise be explained; but it is evident that here, where it has been endemic for centuries, the disease has not a tendency to wide propagation by infection. Dr. LIVEING, in the *Gulstonian Lectures* for 1873, states that leprosy is not found in China north of the Yangtze-kiang. This may be so, as regards some of the provinces through which the river flows, but it does not hold good in Hupeh, for the disease extends along the banks of the Han in a northward direction.

I.—Dr. Alexander JAMIESON's Report on the Health of Shanghai for the half year ended 30th September 1875.

For the following record of meteorological observations I am indebted to the kindness of the Rev. Father LE LEC, S. J., Superintendent of the Observatory at Sikawei. The observations here summarised, as taken under standard conditions and by a practised observer, are of incomparably greater value than any hitherto published in these Reports, or made by any of the numerous amateur observers in the Settlements. For the sake of avoiding error and escaping trouble, as well as because the metric system is daily becoming better understood by English speaking people, I have not transferred the original figures to the scales of inches, degrees Fahrenheit, miles per hour, &c., with which the readers of these Reports are probably more familiar. But I subjoin convenient rules whereby the transfer can be made when desired.

RULES.

To reduce millimetres to inches, multiply by 3,937 and move the decimal point five places to the left.

To reduce degrees C. to degrees F., multiply by 9, divide by 5 and add 32.

To reduce metres per second to miles per hour, multiply by 9 and divide by 4.

The Observatory is situated so close to Shanghai that for all practical purposes the observations may be accepted as made under conditions identical with those under which the residents here live.

The elevation of the barometer is about 7 metres. The maxima and minima thermometers, psychrometer, evaporimeter and ozonometric paper are placed in a perfectly exposed situation, protected in the manner devised by RENOU and St. C. DEVILLE. The actinometer consists of an ordinary thermometer and one with blackened bulb placed in the middle of an exhausted glass globe. The apparatus is fixed $1\frac{1}{2}$ metre above the ground in a perfectly unsheltered place. For estimating the amount of ozone, the prepared papers and scale adopted by BERIGNY and JAME of Sedan are employed. The pluviometers are St. C. DEVILLE's model. One is placed in the garden $1\frac{1}{2}$ metre above the ground, the other on the Observatory platform, 10 metres higher than the former. "Extreme temperatures" are taken, in the sun, from two of NEGRETTE's maxima instruments, manufactured by ALVERGNAT, whereof the bulb of one is covered with black wool, and that of the other with white; and, in the shade, from a mercurial maximum by WALFERDIN, and an alcohol minimum by RUTHERFORD. RENOU's tables are used for the reduction of the barometric pressure to 0° C., and for the calculation of the elastic force of vapour and degree of humidity. The velocity of the wind is registered by the anemometer of SECCHI's meteorograph.

I have taken the above notes, relating to those observations only which are summarised below, from the account officially published. I have further to state that the observations are taken eight times in the twenty-four hours, namely at 1, 4, 7 and 10 in the forenoon and afternoon, and by Father LE LEC in person.

In explanation of this condensed table it has to be remarked that—

The maxima and minima under each month are those noted at the actual hour of observation, except in the case of *Rainfall* and *Evaporation* where the maxima and minima mark the greatest and least amounts for one period of 24 hours. The means are those of the month, except in the case of *Rainfall*, where the mean is obtained by dividing the total amount of rain during the month by the number of rainy days.

ABSTRACT of Meteorological Observations taken at the Observatory of the Jesuit Mission at Sicawei, for the six months ended 30th September 1875. Latitude, $31^{\circ} 12' 30''$ N. Longitude E. of Greenwich, $8^{\text{h}} 5^{\text{m}} 44.63^{\text{s}}$.

DATE.	Barometer at 0° C.	THERMOMETER.		Elastic force of Vapour.	Humidity.	Ozone.	Evapora- tion during 24 hours.	Rainfall in 24 hours.	Velocity of Wind.	REMARKS.
		Temperature in Shade, observed at intervals of three hours.	Extreme Temperature in Shade.							
1875.	mm	°C.	°C.	mm of Mercury.	0-100.	0-21.	mm	mm	M. per sec.	
April, ...	{ Max ... 770.17 { Mean ... 762.35 { Min ... 753.34 { Range ... 16.82	30.0 13.01 3.3 26.7	31.0 13.54 2.0 29.0	14.52 7.96 3.27 11.25	100 * 71.1 26.0 74.0	20 ** 9.31 2.0 18.0	7.23 4.15 1.40 5.83	18.5 4.0 0.1 18.4	11.4 3.8 0.0 §§ —	
May, ...	{ Max ... 767.42 { Mean ... 759.32 { Min ... 751.72 { Range ... 15.70	30.4 19.79 8.7 21.7	33.0 20.53 7.6 25.4	22.22 12.44 3.74 18.48	100 † 73.8 18.0a 82.0	20 †† 9.6 0.0 20.0	13.34 4.77 0.58 12.76	25.8 11.8 0.2 25.6	15.0 4.1 0.0 § —	a. On the same day 25 was registered.
June, ...	{ Max ... 759.42 { Mean ... 755.26 { Min ... 749.35 { Range ... 10.07	29.8 22.37 15.3 14.5	31.8 22.75 14.7 17.1	24.40 18.02 12.94 11.46	100 ‡ 89.4 47.0 53.0	20 ‡‡ 10.6 2.0 18.0	5.26 1.66 0.22 5.04	104.6b 23.4 0.1 104.5	11.4 3.8 0.0 —	b. 12.9 mm fell in one hour.
July, ...	{ Max ... 757.21 { Mean ... 753.02 { Min ... 747.27 { Range ... 9.94	37.4 28.15 22.0 15.4	38.9 29.04 21.7 17.2	27.89 23.21 18.61 9.28	100 § 82.6 50.0 50.0	11.0 5.1 0.0 11.0	1.82 3.33 0.0 * 1.82	35.6 10.3 0.9 34.7	11.7 3.6 0.0 —	
August, ...	{ Max ... 759.83 { Mean ... 755.31 { Min ... 742.35 { Range ... 17.48	34.3 26.28 17.7 16.6	36.4 27.14 16.8 19.6	25.69 20.89 11.60 14.09	100 82.9 43.0 57.0	17.0 5.7 0.0 17.0	4.50 2.79 0.18 4.32	77.6 22.9 0.4 77.2	12.5 3.2 0.0 ¶¶¶ —	
Sept., ...	{ Max ... 764.41 { Mean ... 758.99 { Min ... 752.06 { Range ... 12.35	32.3 22.17 14.8 17.5	33.0 23.05 13.5 19.5	25.77 16.79 9.14 16.63	100 ¶¶ 84.5 43.0 57.0	14.0 7.1 2.0 12.0	3.90 2.29 0.12 3.78	157.1c 15.9 0.1 157.0	7.8 3.2 0.0 —	c. For three hours the mean per hour was 32.7 mm.

* 3 times. † 11 times. ‡ 14 times. § 4 times. || 20 times. ¶ 17 times. ** 10 times. †† 15 times. ‡‡ 16 times. §§ once. ||| twice. ¶¶ 5 times.

N.B.—The difference between the extreme temperatures registered at the times of observation, and those given under the heading of "Extreme Temperature in Shade," is due to the fact that the periods of maximum and minimum vary with the seasons, and do not necessarily coincide with the hours of observation.

April was throughout cold and dry, and with the exception of one or two unusually hot days in the first fortnight of May, the first half of that month shewed no change. But from the third week of May to the end of June the weather was continuously wet with a low temperature. Severe heat began with the opening of the month of July and continued for nearly two weeks, when there was a sudden fall of temperature ushered in by a change in the prevailing winds from west to south. This intermission was of short duration, the temperature recovering itself at the beginning of the third week and continuing high both day and night until the end of the month. Throughout August there were heavy rains with a moderate temperature, and September was cool and dry.

Small-pox was present throughout the half year—two cases at least, one of which was fatal in August, having occurred in private, and three (one fatal) at the General Hospital. On the 14th June the Municipal Health Officer announced that a case supposed to be charbon had rapidly run to a fatal termination in a foreign child three years old. No other cases have since been reported. Some cases of measles of a very mild character occurred, but the disease did not become epidemic. Sun malaise was common in July, and children who happened to be passing through the period of dentition suffered severely. During the entire season intermittent and remittent fevers with a few doubtful typhoid cases, diarrhœa, dysentery, muscular and chronic rheumatism, hepatic congestion, together with neuralgia, boils and colds made up the sick lists of the Settlement. A doubtful case of scarlatina in a Eurasian child was reported in August. About the same time the Chinese were said to be dying in large numbers with purging, cramps and collapse.

Residents in Shanghai were unusually fortunate during last summer in respect of facilities for sea trips. The S. S. N. Co. for a considerable time ran a weekly steamer to Pootoo at low rates, while the P. M. and M. B. Steam Companies offered passages to Japan on the most reasonable terms. Both these were largely availed of by foreigners and were doubtless of vast advantage in maintaining health and aiding convalescence.

Rinderpest was reported to have reappeared in September.

The health of the Customs staff was fairly good. One fatal case of small-pox which presents many points of interest is fully reported at page 62. Besides this, the only case claiming particular attention is that of a diver employed by the Customs, who, without any noticeable decline of health, laid up on the 30th September with suddenly occurring jaundice and obscure symptoms of abdominal tumour, and died seven days later. A post-mortem revealed cancerous infiltration of the pancreas with complete occlusion of the common bile duct, apparently of inflammatory character.

It will be noticed that the prevalence among the Chinese of a severe and frequently fatal form of bowel affection, attended by vomiting and cramps, attracted attention in August and September. This was a hint as to a possible visitation of epidemic cholera in the immediate or near future which ought not to be neglected. Especially should attention be directed by every householder to the purification of his drinking water by boiling and filtration. I have written so much in previous Reports upon the subject of common-sense hygienic precautions, that I will content myself here with quoting the following passages (1) from the recently published *Report on the Hygiene of the United States Army* by Dr. BILLINGS (Washington, 1875; p. vi.), and (2) from a letter addressed by Mr. SIMON in 1874 to the President of the Local Government Board.

1°.—When an epidemic is present the services of the physician are highly valued, but his efforts to prevent its appearance, which, to be effective, must be made at a time when most people see no special cause for anxiety, and which, therefore, appear to involve unnecessary worry and expense, will be often rated at an inverse ratio to their success. If the expected disease does not appear, the warnings are considered to have been a false alarm, and the precautions taken to have been excessive. The friends of the typhoid fever patient who will not fail to remember and be grateful for the care and assiduity with which the physician combated the disease, would very likely have thought him intrusive and meddlesome had he taken one half the same trouble to see that the possible causes of such affections were removed or destroyed.

2°.—The nature of the defences which we in England have at our disposal against cholera when brought into our ports, may be gathered from two papers which are appended to my recent Annual Report: one, the Order which the Local Government Board has in force with respect to ships suspected of choleraic infection; the other, a Memorandum of advice to the public on the mode of propagation of cholera. Under the Order, each Port Sanitary Authority has certain facilities for inspecting ships of suspicious arrival, and can deal, as regards things and persons, with cases of manifest or probable choleraic infection, by requiring the disinfection or destruction of infected or probably infected things, and, if it has hospital accommodation, by requiring that no person with manifest or probable signs of cholera shall leave the ship except for treatment in hospital: these facilities and powers being in substance such, and only such, as the Port Authority also possesses in relation to small-pox and typhus, and other of our accustomed infections: but of quarantine strictly so called—that is, of detaining for periods of sanitary observation persons who do not already appear sick, the order has nothing to say. It tacitly confesses that England has abandoned as futile, and as tending to inspire false confidence, such quarantine or pretence of quarantine as is alone possible to a great commercial community; and that when cholera is current on the continent of Europe we must accept, as practically not to be avoided, innumerable chances which indeed make certainties that the same contagium will freely enter our own country.* It is on that basis that the true defences of England against cholera have to be planned: *defences not peculiar to the coast line of England but, in principle, equally to be aimed at in each sanitary district throughout the country; defences which consist essentially in those common hygienic precautions which local sanitary authorities are responsible for providing or enforcing, and above all in extreme vigilance in regard of the local supplies of water and the local prevention of filth.* The local conditions which would enable cholera, if imported, to spread its infection in this country are conditions which, day by day in the absence of cholera, create and spread other diseases: diseases which, as being never absent from the country, are in the long run far more destructive than cholera: and the sanitary improvements which could justify a sense of security against any apprehended importation of cholera, would, to their extent, though cholera should never re-appear in England, give amply remunerative results in the prevention of those other diseases. Above all, in the sense of preventive medicine, I would refer to the close ætiological affinity, at least in Europe, between the diffusion of cholera and the diffusion of typhoid fever, * * * and I would venture to express a belief that in proportion as common sanitary improvement takes from typhoid fever its present deplorable and disgraceful power of spreading among our population, in such proportion will England have better security against cholera than any imaginable system of quarantine could have given her, and will be able to receive with comparative impunity whatever importations of cholera-contagium may thenceforth accrue to her from abroad.

These weighty remarks are of no merely local application. They are as true for Shanghai and other places of foreign residence in China, as for England. The plea of ignorance cannot be

* In India, the proposal to establish quarantine has been negatived on the grounds that strict surveillance over the native cities is impossible, and therefore it would be merely vexatious to interfere with the few cases that might occur among shipping, and that there is no reason to suppose that any epidemic of cholera (in Bombay) has been due to importation by ships. In Bombay, therefore, it has been determined that when disease of an epidemic character is present on board a ship, measures shall be taken for affording hospital accommodation and treatment for the sick, while in Calcutta a health officer has merely been appointed whose duty it is to look after the sanitary condition of the port and shipping.

put in as an excuse by the communities scattered along the China coast, should the origin or spread of an epidemic be found due to neglect of hygienic precautions.

When facing the possibility of the occurrence of a cholera epidemic, Indian experience is supremely valuable. When cholera made its appearance at Simla for the first time in 1875, on June 26th, a special hospital was established, and endeavours were made to remove to it every person attacked. The attempt failed through the unwillingness of the people to allow their friends and relatives to enter a building which there was little likelihood of their ever leaving. Hence cases of the disease were carefully concealed. After a time the following plan was adopted. The Settlement was divided into districts, each of which was provided with a hospital assistant and a supply of drugs, and the people were urged to apply for assistance on the first appearance of premonitory symptoms. Confidence was soon gained, many cases were checked in the early stage, and the hospital was reserved for those who had no friends to look after them. The sick were attended in their own houses, and disinfection was carried out as far as possible. "There is not," says Dr. CUNINGHAM, from whose eleventh Report I have taken the above facts, "the smallest ground to believe that treating the sick in this way in the least degree spread the disease."

There appears no reason to doubt that the immediate cause of the so-called malarious fevers is the absorption by the human body, almost certainly by way of respiration, of ground emanations. Of late years, and especially in Germany, this matter in its bearing on the production of typhoid fever and cholera has been carefully investigated by PETTENKOFER of Munich, and others. Much of a mysterious character has been written and spoken about PETTENKOFER'S ground water investigations. The simple fact is that during 16 years in Munich he found that the mortality from typhoid fever varied with pretty constant regularity inversely as the height of the ground water. But the variations in the ground water level are taken merely because they measure most accurately the degree of dampness of the soil, and upon the degree of dampness depends the consummation of certain organic processes which tell on the composition of the ground air. Gases of all kinds pass readily through soil that is in the slightest degree porous, and therefore, under well known physical laws, the heated air within a house gives rise to a current from the ground beneath which easily passes through the flooring, carrying with it gaseous products whatever they may be. To meet this source of danger a German physician—Dr. Paul NIEMEYER—has recently suggested the following simple and inexpensive precaution, which merits the attention of our local architects. A chamber one foot deep, and made air-tight above by means of asphalt or cement, is constructed in the foundations, covering the entire area occupied by the house. In this the chimneys from the lower story begin, and thus all foul gases and disease germs arising from the soil are carried out of the house without coming into contact with the inhabitants. Were this plan adopted in Shanghai, the kitchen chimney should be made to communicate with this basement chamber, and thus even in summer the current would be maintained, and we should be shut off far more than are residents in the best class of houses in Western countries from the intrusion of hurtful gases. Five years ago Dr. BARTON, in the first number of these Reports, made the startling but valuable remark that foreigners in China owe much of their immunity from disease to the primitive system of water-closet accommodation which is in vogue. We escape all the dangerous and

often deadly gases which rise from imperfectly flushed drains, and also all the risks of domestic water pollution which crop up so constantly in European houses to which water is laid on, and in which there are more or less scientifically devised closets. I now draw attention to the matter for the purpose of recommending the addition to the furniture of every bath-room of a bottle containing a solution of sulphate of iron and crude carbolic acid in water, in the proportion of one part of carbolic acid, four parts of sulphate of iron, and thirty parts of water by weight. This is PETTENKOFER'S formula, and a cheaper, less troublesome or more effectual disinfectant could not be devised. A quart of water should be left in the bucket to start with, and then each time that it is used, a couple of ounces of the solution should be poured in. By this means the air will be rendered perfectly pure, or at most faintly impregnated with carbolic acid.

Attempts have lately been made with but scant success to domicile in Shanghai the *Eucalyptus globulus* or Australian blue gum tree, as a means of counteracting the influence of marsh miasm. In India like attempts have also failed. The Sanitary Commissioner (11th *Annual Report*, p. 42) states that in the lower provinces of Bengal it thrives as a seedling, but becomes sickly after eighteen months and generally dies before the third year. In Darjeeling it lives for but a few years. Its fate in the north-western provinces has been various, but the conclusion is that it is unsuited to swampy land and is unable to resist hot winds. Further trials are to be made at Meerut, Roorkee, Sialkot, Jhelum, Rawul Pindi, Meean Meer and Peshawar.

To turn for a moment to apparently less important matters, it may be stated generally that everything which conduces to real comfort conduces to health, and therefore even the smallest matters of comfort are not to be despised when seeking to add to the means of repelling disease. Every resident in a tropical climate is taught or learns for himself that the utmost importance attaches to the character and fabric of his clothing—to his flannel band and other devices for opposing the effects of sudden changes of temperature. Woollen fabrics are bad conductors of heat, whence the common experience of their warmth in winter, when they prevent rapid transference of heat from the body to the external air, and of their coolness in summer, when, if not too thick to allow of evaporation, they prevent rapid transference of heat from the external air to the body. Light, somewhat loosely textured flannels are therefore the coolest summer wear. But not alone the fabric but the colour deserves consideration. The winter suit of white acquired by arctic furry animals gives a valuable hint. White coloured fabrics absorb heat imperfectly and are therefore suitable where the wearer is exposed to a high temperature, they also radiate heat imperfectly and are therefore suitable where the wearer is exposed to a low temperature. On the other hand dark colours absorb heat readily and part with it readily, and are therefore most suitable under a moderate temperature when the balance between the natural heat of the body and that of its surroundings is more easily maintained.

During the half year there were, as I gather from the Sexton's books and the Burial Register, 33 deaths, from which subtracting 15 deaths among non-residents, we obtain 18 as the mortality among residents for the period. One death from tetanus following a lacerated wound of the hand, one from internal injuries caused by the kick of a horse, and two by drowning have further to be withdrawn in order to get the total of disease among residents. And finally two deaths have to be subtracted as occurring among infants under 3 years old.

BURIAL RETURN OF EUROPEANS FOR THE HALF YEAR ENDED 30TH SEPTEMBER 1875.

CAUSE OF DEATH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	TOTAL.
Variola,	—	—	—	1	1	—	2
Enteric Fever, . . .	1*	—	—	—	—	1	2
Phthisis,	2*	f 1*	1*	—	—	—	4
Chronic Dysentery, .	1	1*	—	—	1§	—	3
Chronic Diarrhoea, .	1	—	—	—	—	—	1
Suppurative Hepatitis,	—	1	—	—	—	—	1
Heat Apoplexy, . . .	—	—	—	2*	1*	—	3
Alcoholism,	—	—	—	1	—	—	1
Cerebral Softening, .	—	—	—	1	—	—	1
Cerebral Embolism, .	—	—	—	—	—	1	1
Infantile Marasmus, .	—	—	—	—	—	1	1
Exhaustion,	—	—	—	1	—	—	1
Bright's Disease, . .	—	—	1*	—	—	—	1
Tetanus (traumatic), .	—	—	1	—	—	—	1
Accident,	—	—	—	1	—	—	1
Drowned,	—	—	1	2*	1* 1	1*	6
Uncertified,	f 1†	—	f 1‡	—	—	1*	3
Total,.....	6	3	5	9	5	5	33

* Non-resident. † Puerperal fever. ‡ Infant 26 months old. § Pauper aged 80. || Infant aged 41 days.

The mortality from disease among resident foreign adults is thus reduced to 12 (11 males and 1 female) as against 21 (16 males and 5 females) during the same period of last year. These deaths may be arranged as follows:—

Small-pox, 2	Chronic Diarrhoea,..... 1	Brain Disease, 2
Enteric Fever, 1	Abscess of Liver, 1	Exhaustion, 1
Chronic Dysentery, ... 2	Alcoholism,..... 1	Uncertified, 1

With regard to these it has further to be remarked that the case entered as enteric fever, may have been one of abscess of the liver. The patient died at sea, and the symptoms during life were doubtful. One of the cases of brain disease was secondary to long standing valvular disease of the heart; and in the case of exhaustion the sufferer had neglected a severe diarrhoea until too late, and from a mistaken feeling of proud independence had undergone privations which the many friends whom he kept in ignorance of his needs would have been able and anxious to avert.

Since September 1874 we have had no fatal cases of aneurism among men under 40, though whether this immunity from the disease, like its previous prevalence, may be merely accidental, whether it be due to more care on the part of men with a tendency to it, which I much doubt, or whether it may not be due to the disease having for the time sacrificed all its destined victims,* would be hard to determine.

* Solitudinem faciunt, pacem adpellant. TACIT: *Agricola*, cap. 30.

The connexion between aneurism and syphilis has recently come up again for consideration in England. At a late meeting of the Royal Medical and Chirurgical Society of London the subject was keenly discussed. No conclusion was arrived at, but the general sense of the profession seems to have been expressed by Sir William GULL, who declared his belief that syphilis is probably only indirectly a cause of aneurism, and that rheumatism and alcoholism, with or without increased blood pressure from peripheral impediments to the circulation, produce the same arterial inflammatory changes as syphilis.

It is worthy of note that ZEISSL of Vienna, in his classical work on Syphilis, when minutely describing the lesions produced or induced by the contagium within the system, does not mention any tendency to arterial degeneration. Speaking of the lesions which affect the heart, he says (*Lehrbuch*, Bd. ii., 258):—

RICORD and LEBERT were, as far as I know, the first to pay special attention to the syphilitic lesions of the heart, and established the occurrence of gummata in that organ, while DITTRICH mentions two cases of myocarditis with contemporaneously existing syphilitic alterations in other tissues.

VIRCHOW says, on the authority of a post-mortem examination published by him, "Completely corresponding to the syphilitic lesions of the testicles and liver there are also syphilitic pericarditis and endocarditis, a simple and a gummatous interstitial myocarditis." He found in the case he cites a partial pericarditis, gummata in the muscular structure of the heart, the endocardium to a very great extent transformed by sclerosis, and in the left ventricle near its apex, and springing from its wall, an adherent thrombus. Around the gummata was a very extensive, simple, interstitial myocarditis. "There arises here," continues VIRCHOW "the question whether there are not also syphilitic inflammations of the heart without gummatous formations, such as present themselves in the liver and the testicle. May not many a simple myocarditis, which proceeds to the formation of a partial cardiac aneurism be of syphilitic origin? May it not be true, as CORVISART thought, that syphilitic excrescences on the cardiac valves are to a certain extent condylomata?"

In the fibrous or loose and vascular masses which can be proved to be developed in the interstitial connective tissue of the heart walls, and into which the proper muscular substance gradually degenerates, there occur, as in the liver, two forms of yellow, and frequently nodular growths: gummata undergoing fatty degeneration, and insular remains of atrophied, deeply pigmented muscular tissue. The latter are often yellow, brown or green, are friable, soft and exhibit under the microscope much pigment among the primitive bundles. This is therefore probably to be distinguished from the gummatous growth as such, although enclosed within the latter certain portions of the degenerated or atrophied muscular structure are to be recognised.

NIEMEYER, moreover, while ascribing aneurism to the endarteritis deformans of VIRCHOW, mentions syphilis merely incidentally as one of the causes of the latter. It is, he says, encountered with surprising frequency in old age, and next in individuals suffering from rheumatism, gout, syphilis or from the effects of excess in drinking. It is associated with cardiac hypertrophy in young subjects who are not cachectic. And while asserting that aneurism is of comparatively rare occurrence in early life, he continues "men are by far more frequently attacked than women, but as aneurisms are mostly found among men who undergo severe bodily strains, the difference ascribed to sex would appear to depend on the different occupations of men and women."

Here, the fact may be recalled that Captain WEBB, who has lately drawn upon himself the eyes of the world by his feat of swimming across the British Channel, underwent no special preparatory dieting and training with a view to his attempt. His state of physical preparation was merely his sound general health, which he wisely declined to interfere with

by any measures which must certainly have weakened him, whatever other effect they might also have had. Yet his exploit throws all previously reported athletic performances into the shade. The severe and prolonged muscular exertion involved can in a measure be appreciated by everybody, but it is no less true though less obvious that the surrounding circumstances were among the most unfavourable possible. Among these the most important were, defective blood oxidation in consequence of the work of cutaneous exhalation being thrown on the already heavily taxed lungs, and the rapid and continuous abstraction of heat by the cold water in which he was immersed. It is certain that any display of athletic skill which demands a preliminary overstrain of the heart and great vessels at a time when muscular waste is at its highest, as in rapidly reducing weight by assiduous sweating, is in itself bad. "Morituri vos salutamus" might be said by the actors in such scenes to the admiring spectators, who know nothing of the risks unconsciously run to gain their applause.

Taken by themselves, the burial returns on page 59 would convey an unfairly favourable impression as to the healthiness of Shanghai. Assuming the adult foreign population to be about 2,500, they would shew an annual mortality at the rate of no more than 10 per thousand. The conclusion, instead of being one upon which we can heartily congratulate one another, is simply that statistics taken for so short a time and amid so small a community are absolutely worthless. But, with a more wholesome and sensible way of living than prevailed some years ago, we shall without doubt, epidemics apart, find that the annual death-rate will shew a steady diminution. Moreover, there is no likelihood of any large increase in the cost of the necessities of life, including reasonably good house accommodation, nor in the amount of work at present demanded from individual members of the community, while, on the other hand, whenever railroads shall be introduced there will be additional facilities for removing the sick or convalescent from unhealthy localities. I am much mistaken also if the energetic good works of the Temperance Society do not year after year tell more and more upon the condition, as regards health, not only of sailors visiting the port, but of the members of that large and constantly increasing body of Europeans who pick up an honest livelihood somehow, but whose members are but little seen except by accidental visitors to small stores in French town and Hongkew.* While therefore it may probably never be true that the lives of the insuring and non-insuring classes of Europeans in China are as valuable as they respectively are on the Continent or in England, we have every prospect of approaching closely to that condition. We are still far from the state of things pictured by Dr. MOUT in his paper addressed on the 28th July 1873, to the Chairman of the Positive Government Security Life Assurance Company (§ 8)—"during 30 years' personal knowledge of Calcutta and Bengal, he could almost count on his fingers the number of persons in his large circle of acquaintance who died from tropical diseases, or affections which could fairly be traced to "purely climatic causes." No doubt the expressions "large circle of acquaintance," "fairly be traced" and "purely climatic" are all relative, but making the fullest allowance for this fact, Indian mortality statistics abundantly prove, in Dr. EWART's† words, that this statement is

* I have done no more than justice in the text to the Temperance Society whose leading members are, I fear, of opinion that they need look only for hostile criticism in these pages. Here, however, is a fact for them. During COOK's visit to Java in 1771, his officers and crew suffered most severely from marsh fever. Several died, and only one person was altogether free from illness. This was the sailmaker, a man between 70 and 80, who while on shore was drunk from morning to night.

† Letter in reply by Dr. EWART, Surgeon to the Bengal Presidency General Hospital, and Professor of Physiology in the Medical College; p. 9. See also this letter *passim* for many valuable remarks on Indian vital statistics.

"inaccurate and untrustworthy." In Shanghai, and at the China ports in general, our health statistics compare favourably with those of India,* but this, however gratifying, ought not to satisfy us so long as there is a single hygienic requirement within our power to supply, and not yet supplied. It is only by meeting such wants that we shall escape disease here, and what is of equal importance, that physical and mental enervation at a period of life that ought to exhibit the prime of vigour, which marks the retired Anglo-Indian and makes him, in the vast majority of instances, incapable of taking a prominent position at home.

The following cases in practice are worthy of notice:—

Small-pox running an anomalous course and terminating fatally.—Late at night on the 1st August, I was summoned to Mr. HOUSTOUN, Chief Engineer of the Customs steamer *Kuashing*, who was said to be suffering from sunstroke. I found him complaining of intense headache and pain in the loins, frequent vomiting and obstinate constipation. He was quite collected, and told me that on the afternoon of the previous day he had been much exposed to the sun, and that returning in the evening to his residence on shore he had vomited a quantity of bile. He took several Cockle's pills without effect, and had a sleepless night. All through the forenoon and afternoon of the 1st August the pain in his head and back had continued to increase. In the afternoon he swallowed a bottle of limonade Rogé, but returned part of it. He had also taken some quinine. As his bowels had been confined for three days, I introduced a soap suppository with the effect of at once producing a large evacuation. His skin was covered with prickly heat, which at the flexures of the joints he had scratched into large ulcerated patches. His pulse was 100 and his temperature in the mouth 102.8° F. I had his whole body oiled, applied mustard to the epigastrium, and ordered 5 grains of quinine in solution every 6 hours.

2nd August.—Had slept a little, temperature 100° F., vomiting checked; bowels loose. Pains unrelieved. No appearance of eruption. Had vomited the quinine, which however in half doses was retained. Drank milk freely. No delirium.

3rd.—Was sleepless last night; pains described as agonising. To have a chloral draught at 8 P.M., which produced about five hours sleep. Throat somewhat tumefied.

4th.—Being elsewhere engaged I was unable to see the patient, who was visited by Dr. PICHON. The throat was now very painful, headache relieved, "pain in loins violent, pulse 102, skin burning and "covered with an almost confluent eruption of prickly heat;" no appearance of eruption, though the symptoms pointed to small-pox.

5th.—I told the patient that although I could not say positively that he had small-pox, I considered his case so suspicious that he ought in justice to his family to move to the hospital. He at once acceded to this suggestion, but said that it was impossible that he could have small-pox as he had nearly lost his life by that disease eight or nine years ago. He was taken to the hospital that evening, but passed a sleepless night in consequence of the intense heat.

6th.—Pulse 90, temperature in mouth 100.1° F. in the forenoon. The condition of the skin unchanged as regards the prickly heat, but otherwise covered with a copious eruption of vesicles containing clear fluid, a few groups of the vesicles being confluent and forming blebs. Each separate vesicle was about the size of a split pea, perfectly flat on the surface, and, so far as could be judged under the condition of the skin, without an areola. The throat was much better, and the patient joyously referred to the eruption as one of chicken-pox. I acknowledged that he seemed to be right, but on account of the violence of the previous fever maintained that he must consider himself as still under the suspicion of small-pox. As it was

* Contrast especially what Dr. EWART says about children of European parentage in India with our constant experience in Shanghai where, during eight months of the year, the children are as ruddy and always as intelligent as any in England:—"Moreover it is now admitted by the best authorities that children reared on the most healthy of our hill sanatoria, are, at the "best, mentally and physically but enfeebled representatives of the race from which they have sprung." (*Letter*, p. 10.)

impossible for him to stay in the hospital small-pox wards, I directed his removal that evening to a large room over the Customs godown at Pootung. Unfortunately, however, he insisted on returning to his own house, his family moving to the godown, this arrangement interfering seriously with the isolation which I considered necessary.

7th.—He had spent a fairly good night. His face was much swollen. On his chest (8th day of the fever) were three well marked small-pox pustules arranged in the arc of a circle, flat but umbilicated. Pulse 100. Could swallow milk and rice congee easily. A male nurse was engaged to watch him, a punkah was slung over him, and a water bed procured.

8th.—A large number of pustules on the legs; pulse 112, slight cough with mucous expectoration. Throat more painful. To have flannels wrung out of tepid water applied, which gave much relief.

9th.—The whole body, except the scalp and upper part of face, was now sprinkled over with pustules, a considerable number of the flat serous vesicles before referred to having meanwhile broken and the contents, which were faintly yellow, but not absolutely purulent, crusting on the skin until removed by frequent ablutions with warm water containing vinegar. Where these crusts were removed the skin was faintly reddened, but almost of its natural colour.

10th.—The eruption on the legs becoming livid, a bottle of claret was ordered to be distributed through the day and night, and as the chloral gave him, he said, horrible dreams, it was discontinued, and 25 minims of solution of hydrochlorate of morphia ordered in draught at night. The palate and fauces were covered with the eruption and all food had to be given in a liquid form. I was in the act of explaining to him how little I could do to relieve his throat when he interrupted me by saying that he knew that the eruption there must run its course like that on his body. There was no difficulty of breathing, and hardly any cough.

11th.—Slept well at intervals last night. Forehead and scalp now quite clear, and skin natural. The eruption on the limbs was pinker in colour. To continue the claret, and for food milk and ice cream, of which he took considerable quantities. His bowels having been confined for three days, a warm water enema produced a solid passage, followed by two others, liquid and horribly offensive.

12th.—Slept well last night. Pulse 108. Complains of inability to clear his nose. Hot sponges applied to the bridge enabled him to sneeze down a quantity of inspissated pus and mucus of intolerable odour, after which he expressed himself as much easier. The eruption was much better in colour, but the pustules were flat and in many places confluent over patches twice as large as a dollar. The claret was diminished to one half as he refused to take more, directions as to food remaining unchanged.

The nurse subsequently told me that immediately after my visit the patient became very restless but without delirium, complained bitterly of the heat, and of difficulty in swallowing, notwithstanding which he drank milk fairly well, but lost some portion of it by a fit of vomiting. About 5 P.M. the dyspnoea became distressing, and at 8 P.M. he remarked to his nurse that he knew he could not live through the night. At the same time he complained of inability to pass urine, and the nurse opening the meatus observed a large pock immediately within the orifice. From this out the breathing became more and more laboured, insensibility supervened and he died suffocated at 11 P.M. Had I been called I would have opened the trachea, without, however, any hope of an ultimate good result.

The treatment consisted in soothing applications to the throat, sedatives when required, abundance of milk and strong soup, frequent sponging of the entire body with warm water containing vinegar, wine when the eruption became livid. The patient was kept on a water bed in a cool room with thorough ventilation, his sleeping jacket was changed after each sponging, and his body merely covered with a sheet. The air of the room was kept sensibly impregnated with carbolic acid vapour.

I have never seen a case of small-pox running a course similar to this, nor has one occurred within the experience of any of the practitioners to whom I have communicated these notes.

Sarcoma of Masseter and Buccinator.—A Chinawoman, aged 38, married, a field labourer, was admitted into the Gutzlaff Hospital under my care on the 15th May 1875. The left side of her face was distorted by a globular swelling of large size, by pressure upon which she could eject into her mouth a considerable quantity of offensively-smelling glairy and occasionally purulent fluid. There was no evidence of disease of either the upper or lower jaw, and the finger could be carried upwards, downwards and backwards, so as fully to define the extent of the growth and to isolate it from the bones. It was obviously confined altogether to the soft structures of the cheek. She first noticed the swelling nine months ago, when it appeared in connexion with violent toothache. She had never had a blow or fall upon the part.

While the mouth remained shut the tumour was soft and elastic to the touch, giving the sensation of obscure fluctuation, but when the jaws were separated the side of the face seemed occupied by a tumour of cartilaginous hardness. On the 20th May, under the impression that I had to deal with a cystic growth situated between the buccinator and the masseter, and penetrating deeply beneath the latter, I plunged a trocar into the most prominent portion of it within the mouth. Only a few drops of blood escaped. Assisted by Drs. LITTLE and BARTON, I then proceeded to remove the growth by a longitudinal incision through the cheek. After careful dissection, exposing all the deep structures between the angle of the mouth and the posterior border of the ramus of the lower jaw, it was evident that the left masseter was completely replaced by a voluminous tumour which had encroached largely on the buccinator and had intruded into the zygomatic fossa. Having removed the remains of the masseter along with the tumour, completely separating the attachments of the muscle to the malar bone and the lower jaw, and having dissected off the buccinator from the mucous membrane of the mouth, the wall of a small cyst was brought into view, lying deep in the zygomatic fossa, and almost hidden by fat. On puncturing this a considerable quantity of extremely fetid fluid escaped, and the finger introduced into the cavity came upon a morsel of dead bone about half a square inch in superficies, and $\frac{1}{8}$ th of an inch thick, obviously derived from one of the flat bones of the skull.

The large cavity left by the operation was lightly filled with lint, and the upper part of the wound brought together by sutures. Recovery was rapid, and the patient was discharged, apparently cured, on the 4th July. On microscopic examination the tissue was found to consist of a granular stroma in which here and there broken muscular fibres were observed. Several red blood corpuscles were interspersed amidst circular, oval and spindle-shaped cells, the latter (filament-cells of VIRCHOW) largely predominating. The circular and oval cells were highly refractive and of various sizes, from that of a red corpuscle to one larger than a white corpuscle. Most contained one nucleus, but some two, and all were more or less filled with granular matter. The tumour was therefore a specimen of spindle-celled sarcoma, and from the absence of any limiting structure will in all probability recur.

In the following case the treatment is open to serious criticism, especially as it was adopted in defiance of several high authorities. But as there was from the first little or no hope of saving life, and as the only end expected, namely relief from pain, was attained, I believe that the practice was sound:—

A chair-coolie, aged 54, was admitted to the Gutzlaff Hospital on the 9th June 1874, with gangrene of the left foot. The bones of the fourth and fifth toes were already exposed, the muscles on the plantar surface for rather more than three inches from the metatarso-phalangeal joints were exposed, black and pulpy, and the skin on the dorsal surface was purple, and here and there near the toes covered with vesicles. The posterior tibial artery could be felt beating very faintly. The skin of the left leg was darker than that of the right, but not sensibly colder. There was some slight effusion into the knee joint, and the pulsation of the left femoral was much weaker than that of the right, although both were very weak. The patient's general appearance was very unpromising. His temperature was 102.5° F., his tongue dry and hard, and diarrhoea constant. Intense pain was complained of, which became unbearable when the fourth and fifth metatarsal bones were pressed on.

He stated that three months ago he went to bed one night quite well except for some slight itching in the fourth and fifth toes of the left foot. During the night this became intolerable, and to relieve it he stuck an opium needle deeply into the toes in several places. In the morning he noticed that the toes were black, cold and insensible. Ever since, pain in the foot and leg has gone on increasing, he has been absolutely sleepless for several nights. His friends say that he is violently delirious at night.

Strips of lint soaked in a 5 per cent. solution of carbolic acid in oil were lightly wound round the gangrenous parts and covered with a thick layer of cotton wadding, through which powdered charcoal was liberally scattered. One grain of solid opium was administered every four hours along with one ounce of brandy; milk and strong soup were given ad libitum. In spite of the large quantities of opium taken, sleep had not been produced up to the evening of the 12th except in snatches of a few minutes at a time. The general symptoms, with the exception of the pain, had somewhat improved and the gangrene had not spread. I amputated the anterior half of the foot, getting just enough skin, fairly healthy in appearance, to cover the bones. No vessels were tied, but eight hours afterwards there was smart hæmorrhage, easily controlled by pressure. On the following day the patient reported that he had slept perfectly during the night except during the time that the bleeding was being stopped. His appetite had greatly improved, and his tongue was moist. He was absolutely without pain. During the following twelve days the stump appeared to be healing, though sluggishly, and very little pain was complained of. Appetite fairly good. On the 26th June he suddenly became delirious, and from this day to the 2nd July he rapidly lost all the ground he had gained, the gangrene beginning on the 30th June to spread rapidly, and agonising pain, in spite of free exhibition of opium, preventing sleep. On the 2nd July I amputated at the junction of the upper and middle thirds of the thigh, the skin being now discoloured, cold and vesicated as far as the middle of the calf. The femoral artery was occluded by a firm clot which I drew out of it before tying. Five other vessels required ligature. Slept well all night, and very somnolent all next day (1 grain of opium every six hours). He is easily roused, and drinks milk and brandy and water freely. On the 6th the operation wound was suppurating; there appeared to be no effort at union. From this date he gradually sank without pain until the 9th, when he died.

To cite but one authority against amputation under such circumstances, BILLROTH (*Alg. chir. Path. und Therapie*, HACKLEY's Translation, p. 305), says:—"If the gangrene affect a limb, as in the various forms of "spontaneous and senile gangrene, I strongly urge you not to do any operation till the line of demarcation "is distinct. * * * If the patient dies before a distinct line of demarcation has formed (as is "frequently the case) you need not reproach yourself for having neglected amputation, for you may rest "assured that the patient would have died even sooner if amputation had been performed." On the other hand, Mr. HUTCHINSON (*Lancet*, 1875, i., 542) details a case where he "amputated a foot on account "of gangrene in a case in which he knew that the man's femoral artery was occluded. The gangrene was "continually spreading and * * * he amputated just below the knee. * * * Within twenty-four "hours * * * the stump passed into gangrene which spread rapidly to the thigh. * * * He "amputated again at once below the hip joint, and contrary to his expectation the patient made a good "recovery." Such cases therefore are not necessarily fatal. Even without the encouragement of a highly exceptional recovery, I believe a surgeon is bound to esteem the abolition of pain as second only to the preservation of life, and therefore, when he feels that a case is doomed past hope, to assuage a sufferer's final agonies though at the cost of hastening the fatal event. But the occurrence of one successful case such as Mr. HUTCHINSON's, while it leaves the discretion of each individual surgeon untouched, is sufficient to abolish the conscientious scruples which doubtless occasionally intervene between a patient dying in agony and relief to be obtained at the risk of hurrying on apparently inevitable death.

Mem.—In the last number of these Reports, page 12, I referred to the “palm wine of Chaldæa” as described by XENOPHON to be ‘perhaps agreeable but decidedly head-splitting.’ My authority for the reference was the following passage in RAWLINSON’S *Ancient Monarchies*, vol. i., p. 35 and note:—“The Greeks . . . spoke of it (the palm) as furnishing the Babylonians with bread, wine, vinegar, honey, groats, string and ropes of all kinds, firing, and a mash for fattening cattle. The fruit was excellent, and has formed at all times an important article of nourishment in the country. It was eaten both fresh and dried, forming in the latter case a delicious sweetmeat. The wine, ‘sweet but headachy’ (ἡδὺ μὲν, κεφαλαλγὲς δέ. XEN. Anab. ii., 3, 15), was “probably, &c.” At the time of writing the note, my books were out of reach else I should certainly have verified the quotation, though the authority of the Camden Professor of History at Oxford might reasonably seem sufficient. Mr. TAINTOR has since pointed out to me that the allusion is not to the palm wine but to the dried dates. Translated, the passage from XENOPHON is as follows:—“The palm dates * * * are of extraordinary beauty and size, and in colour like amber. After being dried they are put by as preserves, and are agreeable during wine drinking, though somewhat headachy.”



